Dealing with missed opportunities

van Putten, M.

Publication date:
2008

Document Version
Publisher's PDF, also known as Version of record

DEALING WITH MISSED OPPORTUNITIES.

THE CAUSES AND BOUNDARY CONDITIONS OF INACTION INERTIA

Marijke van Putten

DEALING WITH MISSED OPPORTUNITIES.

THE CAUSES AND BOUNDARY CONDITIONS OF INACTION INERTIA

Illustrator: Kizzy Weber

This research is supported by a grant from the Netherlands Organization for Scientific Research (NWO 400-03-385).

ISBN/EAN 978-90-5335-147-5
Printed by Ridderprint Offsetdrukkerij B.V., Ridderkerk

DEALING WITH MISSED OPPORTUNITIES. THE CAUSES AND BOUNDARY CONDITIONS OF INACTION INERTIA

Proefschrift

ter verkrijging van de graad van doctor
aan de Universiteit van Tilburg,
op gezag van de rector magnificus,
Prof. Dr. F.A. van der Duyn Schouten,

in het openbaar te verdedigen ten overstaan
van een door college van promoties
aangewezen commissie

in de aula van de Universiteit
op dinsdag 15 januari 2008
om 14.15 uur

door

Marijke van Putten
geboren op 27 december 1979
te 's Gravenhage.

Promotores: Prof. Dr. M. Zeelenberg
(Universiteit van Tilburg)

Prof. Dr. E. van Dijk
(Universiteit Leiden)

Promotiecommissie: Prof. Dr. O.E. Tykocinski
(Ben Gurion University, Israel)

Prof. Dr. P. Ayton
(City University, London)

Prof. Dr. S. Dewitte
(Katholieke Universiteit Leuven, Belgium)

Dr. B.A. Nijstad
(Universiteit van Amsterdam)

Prof. Dr. F.G.M Pieters
(Universiteit van Tilburg)

Prof. Dr. D.A. Stapel
(Universiteit van Tilburg)

Contents

Chapter 1 Introduction 5

Chapter 2 When? 11
MULTIPLE OPTIONS IN THE PAST AND THE PRESENT: THE IMPACT ON INACTION INERTIA
Experiment 2.1 15
Experiment 2.2 18
Experiment 2.3 22

Chapter 3 When? 29
DECOUPLING THE PAST FROM THE PRESENT ATTENUATES INACTION INERTIA
Experiment 3.1 34
Experiment 3.2 40
Experiment 3.3 45

Chapter 4 Who? 53
DEALING WITH MISSED OPPORTUNITIES: ACTION VS. STATE ORIENTATION MODERATES INACTION INERTIA
Experiment 4.1 55
Experiment 4.2 59

Chapter 5 Why? 69
TURNING SWEET DEALS SOUR: INACTION INERTIA AS A SOUR GRAPES PHENOMENON
Experiment 5.1 74
Experiment 5.2 79
Experiment 5.3 85

Chapter 6 Conclusions and Discussion 93

SAMENVATTING (Summary in Dutch) 109
REFERENCES 113
ACKNOWLEDGEMENTS 121
CURRICULUM VITAE 123

Chapter 1

INTRODUCTION

How many things did you *not* do today? The answer to that question is infinite. I, for instance, did not eat pasta this morning, I did not drive a car, I did not leave my house through the window, and I did not buy an airplane. Of course, I could go on and on and on and on. When there is such an abundance of inactions in everyday life it seems almost silly to try to study them and it seems more efficient to study actions instead. However, many inactions have important consequences, such as hindering good decision making. For example, there are two different systems to register organ donors. In one system, people are automatically non-donors and have to explicitly indicate to become one (opt-in), in the other people are automatically donors and have to explicitly indicate not to become one (opt-out). In countries with opt-in situations (e.g., Belgium, Poland and Sweden) much more people choose to become an organ donor than in countries with an opt-out system (such as The Netherlands, U.S.A. and Germany; Johnson & Goldstein, 2003; see also Ritov & Baron, 1992; Spranca, Minsk, & Baron, 1991). Another example of inactions hindering good decision making, is that people consistently choose to do nothing when the number of choices are so overwhelming, they cannot figure out what they want anymore (Iyengar & Lepper, 2000; Schwartz, 2000). Thus, the consequences of people's inactions can become very important at the individual, but also at the societal level.

Interestingly, people sometimes even choose not to act on opportunities that are objectively attractive. For example, why would somebody booking a flight refrain from signing up for air miles without costs when they get 4,500 miles (half a free flying ticket) extra for free? There are people who do. These are people who found out they could

have had 15,500 free miles if they had signed up earlier (Tykocinski, Pittman, & Tuttle, 1995). Options that were available in the past, but not anymore in the present are shown to largely drive people not to act.

This effect, of people not acting on attractive opportunities simply because of missed prior opportunities, is called inaction inertia (Tykocinski et al., 1995) and is the central theme of this dissertation. In social psychology, the effects of prior *actions* that stimulate people to take action are well known. For example, people are more likely to invest in a failing course of action, when they invested in that action earlier (e.g., the costly Dutch railway known as the Betuwelijn; Arkes & Blumer, 1985). Or, people's willingness to put up a huge sign in their yard against the building of a local expressway is greater when they earlier signed a petition against the expressway (Freedman & Fraser, 1966). Inaction inertia is similar, because it also describes that past decisions influence current decisions, but at the same time it is different, because it describes that inactions can lead to subsequent inactions.

INACTION INERTIA: WHAT, WHEN, WHO, AND WHY?

What?

"Inaction inertia occurs when bypassing an initial action opportunity has the effect of decreasing the likelihood that subsequent similar action opportunities will be taken" (Tykocinski et al., 1995, p. 794). Put differently, when people miss an opportunity to act, they are less likely to act on a similar opportunity later. The first experiment investigating this effect showed that people were less willing to buy a ski pass on discount from $100 for $90 when they missed the opportunity to buy the pass for $40 than when they did not miss an opportunity. Thus, because the initial, more attractive action opportunity is missed (initial inaction), the second less attractive action opportunity is not taken (inertia). This effect is stronger, the larger the difference in attractiveness between the missed and the current opportunity. Thus, likelihood to act on the $90 pass did not decrease when the opportunity to buy the pass for $80 was missed (Tykocinski et al., 1995). Usually, inaction inertia is demonstrated by

showing that people are less likely to act on the current opportunity when the difference between the missed and the current opportunity is large than when the difference is small.

When?

The inaction inertia effect is a very robust finding. Researchers found the effect in various decisions, in scenario studies about buying shoes, booking vacations, signing up for courses, etc. (Arkes, Kung, & Hutzel, 2002; Butler & Highhouse, 2000; Kumar, 2004; Sevdalis, Harvey, & Yip, 2006; Tykocinski, Israel, & Pittman, 2004; Tykocinski & Pittman, 1998, 2001; Tykocinski et al., 1995; Van Putten, Zeelenberg, & Van Dijk, 2007; Zeelenberg, Nijstad, Van Putten, & Van Dijk, 2006; Zeelenberg & Van Putten, 2005), as well as behavioral studies in the lab, where participants were placed in a gambling situation (Tykocinski et al., 1995) or a stock market setting (Tykocinski et al., 2004). Put differently, it seems that any decision is strongly influenced by inactions from the past and that people do not seem able to let go of their past inactions. But that would imply that whenever we miss out on an attractive deal, we are never taking another similar opportunity ever again. With all the sales on clothing nowadays in Western societies, people are bound to miss a few good deals sooner or later. If we take this to the extreme, it would mean that in the end nobody will wear anything ever again. How appealing as this may sound to some people, everyday experience indicates that this is highly unlikely to happen. I, for example, missed some good deals on trousers now and then, and still I am wearing one while writing this dissertation. In other words, there must be constraints on the inaction inertia effect, boundary conditions that determine when it will emerge and when not.

Chapter 2 and 3 report the studies that investigated the basic question, when does inaction inertia occur? The studies in Chapter 2 investigate the effect of choice context on the inaction inertia effect. Until now inaction inertia was studied in settings that offered participants one missed opportunity and subsequently one current option. Based on previous literature on the influence of the presence of multiple options on decision making (Hsee & Leclerc, 1998; Jones, Frisch, Yurak, & Kim, 1998), the

hypothesis was derived that when multiple options are currently offered, inaction inertia decreases. The reason for this decrease is that the decision to act or not on the current opportunity might not just be influenced by the missed opportunity, but rather by a comparison of the options available. In short, the experiments demonstrated that inaction inertia occurs only when the current and missed opportunity are compared one-to-one.

Chapter 3 turns to the characteristics of the decision itself that might determine whether inaction inertia occurs or not. In previous inaction inertia studies the missed opportunity was always strongly associated with the current opportunity. The idea studied in Chapter 3 is that inaction inertia will occur when this association is very strong, and the comparison with the missed opportunity is then easy to make. However, when the missed opportunity is decoupled from the current opportunity (put differently, when the two opportunities are "segregated"), inaction inertia might be less likely to set in. Based on the literature on mental accounting and decoupling (Soman & Gourville, 2001; Thaler, 1999; Van Dijk & Zeelenberg, 2003), the moderating effect of decoupling on inaction inertia was investigated. Specifically, the investigation looked at the influence of factors that decouple the missed from the current opportunity (e.g., the missed opportunity was less comparable to the current opportunity) on the inaction inertia effect.

Who?

Inaction inertia has been studied with participants from various cities and countries. All with their different backgrounds, cultures and personalities. In these diverse groups, the inaction inertia effect is found over and over again. This should not be taken as an indication that individual differences do not matter. For example, when I observe the people around me, some people are natural 'decouplers', such that they are very good at segregating disappointing outcomes, or other situations that went wrong from their current decision. They say things such as: "Ok, that did not work, how can we make it better?", and have a natural tendency to look forward. Others, on the other hand, are natural 'linkers'. Such that they keep wondering about what went wrong, how it could have

happened, and keep their eyes on the past, and how things might have been. Based on the question when inaction inertia occurs, and the studies in Chapter 3 investigating the effect of decoupling on inaction inertia, it is interesting to see whether this individual difference of dealing with disappointing outcomes has a similar influence on the inaction inertia effect. To answer the question who is most likely to show inaction inertia, Chapter 4 investigated the influence of this distinction –action versus state orientation (Kuhl & Beckmann, 1994)— on the inaction inertia effect. The results showed that the 'linkers' (state-oriented people) show stronger inaction inertia effects that the 'decouplers' (action-oriented people), because the linkers used the missed opportunity much more to estimate the worth of the current opportunity than the decouplers did.

Why?

After addressing the questions of what inaction inertia is, when it will happen and who is most likely to fall prey to it, the more fundamental question is why this effect happens. What is the psychology underlying the inaction inertia effect? The literature on inaction inertia is still inconclusive on what precisely causes the inaction inertia effect. On the one hand there is evidence in favor of an explanation in terms of regret of missing the first opportunity. People either want to escape the regret they feel for missing the first opportunity (Arkes et al., 2002), or stay inactive to avoid feeling regret in the future (Tykocinski & Pittman, 1998, 2001). However, recent findings show that regret is not necessarily a causal factor in the occurrence of the inaction inertia effect and thus cast doubt on the regret explanations of inaction inertia. (Zeelenberg et al., 2006). Instead there was more evidence in favor of another explanation of inaction inertia in terms of the valuation of the opportunity, which shows that how much value people place on the choice option depends on the attractiveness of the missed opportunity (Arkes et al., 2002). According to the valuation explanation, inaction inertia occurs because the missed opportunity is used as a reference point compared to which the opportunity is seen as worth less than it is currently offered for.

Chapter 5 outlines a new explanation of inaction inertia. The alternative explanation is that devaluation might not be an end, but a means to cope with the frustration people feel over missing a more attractive opportunity. According to this so called 'sour grapes mechanism' (Elster, 1983), if people cannot get what they want, and feel frustrated over it, a way they might deal with it is by downgrading the object of frustration. After all, if you care less about something, it is less frustrating if you cannot have it! Applied to inaction inertia, people then stay inactive on the current opportunity because they downgraded it in order to alleviate the frustration for missing the more attractive opportunity. Chapter 5 shows results that inaction inertia decreases when downgrading is impossible and thus that frustration cannot be alleviated. Also, the results show that inaction inertia decreases when this sour grapes mechanism is prevented, or discouraged.

By answering the when, who and why questions of inaction inertia, this dissertation aims to contributes to the understanding of the inaction inertia effect. That is why the question "What is inaction inertia" will be readdressed in the general discussion with the findings from this dissertation in mind. When we understand inaction inertia better we can use this knowledge to enhance its effect to prevent its effects when inaction is undesirable (e.g., not booking a vacation when taking a break would be important).

A final note concerns the setup of the individual empirical chapters that follow. The chapters in this dissertation are based on journal articles. The downside of this structure is that this might cause some overlap in issues explained or discussed. An upside of this construction is that it gives readers a chance to read each chapter separately, without missing crucial information. I hope this dissertation gives an informative overview and extension of inaction inertia research up till now, whether you choose to read it cover to cover, or just a few chapters. My aim is that after reading it, you understand inaction inertia and have a clear view of what, when, to whom and why it occurs. I invite you to join me on the path I chose a couple of years ago to explore the fascinating world of missed opportunities.

Chapter 2
When?

MULTIPLE OPTIONS IN THE PAST AND THE PRESENT: THE IMPACT ON INACTION INERTIA

How do people decide whether to act on an attractive action opportunity? If there is one thing we learned from recent decision making research it is that people's preferences are not stable, but highly dependent on the conditions under which such attractive action opportunities are evaluated (e.g., Kahneman & Tversky, 2000). One example of this context dependency is the inaction inertia effect. It shows that missing an attractive opportunity decreases the likelihood that people will act on a subsequent opportunity within the same domain (Tykocinski et al., 1995). For example, people are less likely to book a discounted vacation to Tuscany for $900 instead of the regular $1000 when they missed a prior opportunity to book the vacation for $400 than when they missed it for $800 (Tykocinski & Pittman, 1998). Thus, preferences vary systematically depending on the comparison with past offers. This inaction inertia effect is found for numerous decisions, ranging from the decision to buy a pair of shoes to sign up for a course, and from renting an apartment to saving airmiles (Arkes et al., 2002; Kumar, 2004; Sevdalis et al., 2006; Tykocinski et al., 2004; Tykocinski & Pittman, 1998, 2001; Tykocinski et al., 1995; Van Putten et al., 2007; Zeelenberg et al., 2006; Zeelenberg & Van Putten, 2005).

Since the first demonstration (Tykocinski et al., 1995), the insights into this phenomenon have grown substantially. We now know that inaction inertia occurs because the missed prior opportunity is used as a reference point when evaluating the present opportunity. For example, research has shown that the more attractive the missed opportunity was,

the more people perceive the current offer as a loss, and the more people anticipate regret imagining that they would act on this current opportunity (Tykocinski et al., 2004; Tykocinski & Pittman, 1998, 2001; Tykocinski et al., 1995). Also, the more attractive the missed opportunity was the more people regret missing it and the more they devalue the current opportunity (Arkes et al., 2002; Kumar, 2004; Zeelenberg et al., 2006). Thus, the comparison of the current opportunity to the missed opportunity and the difference in attractiveness between the two opportunities are crucial elements for inaction inertia to occur.

Until now, most inaction inertia studies investigated the effect of missing a *single* prior opportunity on the likelihood to act on a *single* current opportunity, which is understandable from a research perspective. In real life, however, action opportunities are usually not offered in such isolation. In the example of booking a vacation, the trip to Tuscany may be advertised next to a skiing trip in Aspen, a vacation to see tulips in Holland, a trip to go diving in Eilat, or a vacation to experience the mystery of India. Especially now, when the internet allows us to shop around the world, multiple options are only one click away. Thus, one could argue that the typical inaction inertia studies represent oversimplified situations to the participants.

By itself simplification is not necessarily problematic, and in fact helpful to provide a clear demonstration and understanding of the phenomenon. However, in the current chapter attention is drawn to the possibility that the situation in which a single opportunity is missed and a single opportunity is offered might facilitate the use of the missed opportunity as a reference point, because this is the only reference information available. Put differently, these oversimplified situations may be especially conducive to the inaction inertia effect. If one option is missed and one option is offered people naturally focus on the loss incurred by the missed opportunity (Tykocinski et al., 1995). If alternative options are present in the current choice set, the temporal focus of people is likely to shift to the gains that are still available. Manipulating the focus from past losses to future gains moderates the inaction inertia effect (Tykocinski et al., 1995, Exp. 6). In a similar vein, it is proposed that the availability of multiple options increases people's tendency to act on the current opportunity.

Therefore, in the present research the influence of multiple options on the occurrence of inaction inertia was studied. The investigation started in the first two experiments by studying the influence of multiple current options. In the third experiment the investigation continued by studying the influence of multiple missed options on inaction inertia.

MULTIPLE CURRENT OPTIONS

To my knowledge, there is only one previous article that investigated inaction inertia in the context of multiple options (Zeelenberg & Van Putten, 2005). Participants in this research were asked to choose between eight brands of beer (or four brands of detergent) after they missed a discount on one of those brands. They were less likely to opt for the formerly discounted brand when there was a large discount, compared to when there was a small discount. But, at the same time they were more likely to switch to a brand that they perceived to be more attractive at that time. The aim of that article was to show that inaction inertia might be another explanation for the decrease in sales on a brand immediately after a promotion (i.e. post-promotion dip), and that this may be due to the switching to other brands. The current research extends this finding, by showing that multiple current options shift attention from past losses to present possible gains. As a result, the current options will be compared to each other instead of to the more attractive missed opprotunity. This will lead people to choose the most attractive option in the current choice set. An important implication of the present research thus is that people might not necessarily switch to another option but can also decide to act on the same option, depending on its attractiveness compared to the other options in the choice set.

Indirect evidence for this effect of multiple options on the inaction inertia effect comes from earlier research on the influence of multiple options on the choice process. Jones and colleagues (Jones et al., 1998) showed that people weigh attributes of a choice option differently when a choice is framed as an opportunity (e.g., should I book a vacation to Tuscany or not), than when it is framed as a choice (e.g., should I book a vacation to Tuscany, or to Holland, or no vacation). Decision makers

respond markedly different to opportunities as compared to choices. Jones et al. (1998, p. 213) argue that this is the case because "people focus their attention on those aspects of the decision problem which are explicitly represented, and that they tend to pay less attention to those aspects of the problem which are represented only implicitly." Viewed this way, the typical inaction inertia situation can be interpreted as an opportunity decision in which the main focus is on the (difference between) the current and missed opportunity and the perceived loss that goes with it. But the introduction of multiple current options may shift the decision-makers' attention from the missed opportunity to the other alternatives, which probably put it less in a loss perspective. Thus, the opportunity to book the trip to Tuscany would be more influenced by the missed opportunity, than the choice of this trip out of a set that also includes the alternative options to go to Israel or America. Jones et al.'s findings may thus substantiate the reasoning that inaction inertia will be attenuated when there are multiple current options present, because these alternative options decrease the negative impact of the missed opportunity as a point of reference.

This idea is also consistent with the work of Bazerman, Hsee and their colleagues, who investigated the difference between joint and separate evaluation (Bazerman, Moore, Tenbrunsel, Wade-Benzoni, & Blount, 1999; Hsee, Loewenstein, Blount, & Bazerman, 1999). Especially important for the current research are the insights provided by Hsee and Leclerc (1998) who suggested that an attractive but unavailable reference point influences the evaluation of an option more when it is evaluated separately than when it is evaluated jointly with another option. In one of their studies, participants were presented a scenario in which they were considering to buy a cordless phone, and learned that a friend had just bought a phone with a 100 meter reach and a battery that lasts 20 days (this attractive but currently unavailable alternative was the reference point). One group of participants was asked whether they would buy a phone with a 50 meter reach and a battery that lasts 2 days (separate evaluation). Another group of participants was asked whether they would buy a phone with 20 meters reach and a battery that lasts 10 days (separate evaluation). A third group was offered a choice between both these two phones (joint evaluation). It was found that participants in

the separate evaluation conditions were not likely to buy the phone, probably because it compared unfavorably to the unavailable attractive reference point. Participants in the joint evaluation condition, however, were likely to buy one of the phones, probably because they were not so much focused on the unattractive reference point, but also paid attention to the other option in the choice set. Thus, although reference information was present in both the joint and separate evaluation conditions, the impact of this reference information decreased when another option was present in the current choice context.

These previous findings support the idea that the loss incurred by missing a prior more attractive opportunity will influence the decision to act on a current opportunity less when the current opportunity is offered in a choice set with other options than when it is offered alone. Note that this implies expecting only a large influence of multiple options when the difference in attractiveness between the missed and the current opportunity is large. When the difference in attractiveness is small, and its influence on the current decision is small, the influence of multiple options is expected to be negligible.

EXPERIMENT 2.1

The investigation of Experiment 2.1 studied the influence of the availability of another current option on the inaction inertia effect. The reasoning behind this is that an additional option in the choice set would decrease the weight of the missed opportunity in the decision whether to act on the current opportunity. As a result, the difference in attractiveness with the missed opportunity would be less important when another option is in the choice set than when the current opportunity is offered in isolation. The hypothesis is therefore that inaction inertia would occur when the current opportunity is the only option available, but when another option would be currently available too, inaction inertia would be attenuated due to a higher likelihood to act on the current opportunity.

Participants read that they were considering buying a sofa, and that they previously either missed a much more attractive offer (large difference), or a slightly more attractive offer on a sofa (small

difference). This was all information in one half of the situations (one current option). In the other situations it was mentioned that another option was also currently available (two current options). In the one current option conditions the expectation was that the larger the difference in attractiveness between the missed and the current opportunity, the less likely people would act on the current opportunity (= inaction inertia). However, in the two current options conditions the expectation was that, because people are less likely to compare the current to the missed opportunity, that the influence of difference in attractiveness would disappear.

Method

Participants and design
Hundred-sixty students (40 male, 120 female, M_{age} = 21 years) at Tilburg University volunteered to participate in this experiment. They were randomly assigned to one of the four conditions of a 2 (Difference in attractiveness: large vs. small) × 2 (Current option: one vs. two) between-participants design.

Procedure and measures
Participants were provided with a questionnaire containing the scenario. The scenario in the one current option and large [small] difference in attractiveness condition read as follows:

> You would like to have a new sofa. You thought that either a black or a blue sofa would look nice in your room. In a window of a furniture shop you recently saw nice black and blue sofas. The black sofa was offered for €250 [€350] instead of €500. That is why you are eager to stop by the shop. When you get to the shop it appears that you are too late and the offer has expired. The sofa is still for sale. A salesperson tells you the black sofa is now offered for €400 instead of €500.

In the two current options conditions the last two sentences of the scenario were changed into "The sofa is still for sale in black and blue. The blue version is offered for €500. A salesperson tells you the black

sofa is now offered for €400 instead of €500". After reading the scenario participants indicated action likelihood for the black sofa on an 11-point scale ranging from 0 (very unlikely) to 10 (very likely).

Results

The purpose of Experiment 2.1 was to test the hypothesis that likelihood to act on a choice option after missing a more attractive offer is lower when the difference between the missed and subsequent options is large than when this difference is small (i.e., inaction inertia), but that this decrease in action likelihood disappears when the subsequent offer is evaluated in the presence of an alternative current option. The results of action likelihood with respect to the black sofa are summarized in Table 2.1.

A 2 × 2 ANOVA yielded a main effect of difference in attractiveness, $F(1, 156) = 12.89$, $p < .001$, and a main effect of current option, $F(1, 156) = 20.87$, $p < .001$. These were qualified by a significant interaction effect, $F(1, 156) = 4.52$, $p < .05$. Further analyses using simple effects showed that inaction inertia was found in the one current option condition, $F(1, 156) = 16.35$, $p < .001$. However, as expected this effect disappeared in the two current options condition, $F(1, 156) = 1.07$, *ns*.

Discussion

The results show that the size of the difference between the missed and the current opportunity influences the likelihood to act on the current opportunity when it is evaluated alone, but not when it is evaluated together with another current option. Note, that with another option in the choice set, the likelihood to act increased across conditions to the level of the likelihood to act with a small difference in attractiveness (and normally has less negative impact on the likelihood to act on the current opportunity). This corresponds to the idea that the presence of multiple current options shifts the temporal focus from the past missed opportunity to the present available options.

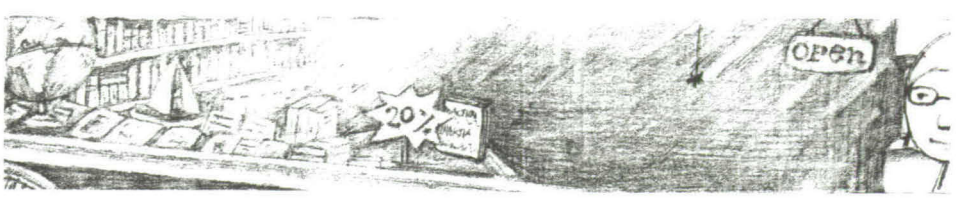


Table 2.1: *Mean and Standard Deviation of Action Likelihood as a Function of Current Option and Difference in Attractiveness in Experiment 2.1*

	Difference in attractiveness			
	Large		Small	
Current option	*M*	*SD*	*M*	*SD*
One sofa	4.47_a	(2.21)	6.52_b	(2.47)
Two sofas	6.88_b	(2.47)	7.40_b	(1.87)

Note. Ratings were made on 11-point scales, with endpoints labeled *not likely* (0) and *very likely* (10), means with different subscripts per row differ at $p < .001$.

Although the current findings support the current reasoning, one might posit that the findings could also be explained differently. One could argue that the sofa was purchased more because of a simple contrast with the other available option. Due to this contrast effect the current opportunity may have looked better in the conditions with two options than in the conditions with only the current option. This way, not only the presence of an alternative option was manipulated, but also whether the present opportunity by itself was seen as more attractive or not. Although this could only explain the main effect of the number of options and not the interaction effect, it would be relevant to control for this possibility. The aim of Experiment 2.2 was to replicate the findings of Experiment 2.1 while controlling for the possible difference in attractiveness of the current opportunity between the one and two options conditions, providing a different test of the hypothesis.

EXPERIMENT 2.2

In Experiment 2.2 participants all missed an opportunity to buy a cordless phone. Next, they were offered a less attractive opportunity to buy a cordless phone with a large or a small difference in attractiveness with the missed opportunity. They were either offered one phone, or

another, or these two phones were offered together. Thus, the same phones were offered together or separately. The main dependent variable of interest was the likelihood to act on the subsequent offer. The hypothesis was that the difference in attractiveness would be important in the decision to act in the conditions with one current opportunity, but that this effect would weaken or disappear in the conditions where the two options are offered together.

Method

Participants and design

Two hundred-ten students (85 male, 114 female, 11 did not indicate their gender, $M_{age} = 21$ years) of Tilburg University volunteered to participate in this experiment. They were randomly assigned to one of the six conditions of a 2 (Difference in attractiveness: large vs. small) × 3 (Current option: Phone A, Phone B, Phone A & B) between-participants design.

Procedure and measures

Participants were provided with a questionnaire containing the scenario of one of the six conditions. The scenario was a modified version of Hsee and Leclerc's (1998) cordless phone scenario. The scenario in Phone A and large [small] difference in attractiveness condition read as follows:

> You are looking for a cordless phone for use at home. In a flyer of Primafoon (a telephone shop) you saw a phone with a 100 [50] meter reach and of which the battery lasts for 20 [10] days. You were interested in this phone. That is why a couple of days later you went to the shop. There it turned out that the phone was already sold out. You briefly talk to a salesperson. He recommends you another phone that is available. The price is within your budget. The phone has a reach of 50 meters and the battery lasts for 2 days.

Difference in attractiveness was manipulated the same in the Phone B and the Phone A & B conditions. In the Phone B and the Phone A & B condition it was manipulated which phone(s) were currently offered to

the participants. In the Phone B condition the phone that is currently considered had a reach of 20 meters and the battery lasts for 10 days. In the conditions with Phone A & B both phones were currently offered together.

After reading the scenario participants could indicate their likelihood to act on these alternatives. In the Phone A condition they were asked, "How likely are you to buy the phone with 50 meters reach and a battery that lasts for 2 days?" In the Phone B condition the same question was asked but then for the phone with 20 meters reach and a battery that lasts for 10 days. In the Phone A & B condition both these two questions were asked. In addition, a more general question was added in the Phone A & B condition, namely, "How likely are you to buy one of these phones?" All action likelihood questions were assessed on 11-point scales (0 = very unlikely, 10 = very likely). One general measure of action likelihood was calculated which used the single action likelihood measures in the Phone A and the Phone B condition and the measure of the likelihood to buy one of the phones in the Phone A & B condition. This measure was used to compare action likelihood between the three conditions.

Results

The purpose of Experiment 2.2 was to test the hypothesis that inaction inertia is replicated for two options when they are evaluated in isolation, and not when these options are evaluated together. The results of the action likelihood measure per condition are summarized in Table 2.2.

A 2 × 3 ANOVA on action likelihood yielded a main effect of difference in attractiveness, $F(1, 204) = 12.14$, $p < .01$, and a main effect of current option, $F(2, 204) = 6.16$, $p < .005$. These main effects were qualified by a significant interaction effect, $F(2, 204) = 3.41$, $p < .05$. Simple effects nalysis showed a significant difference in action likelihood between the large and small difference (i.e., inaction inertia) in the Phone A condition, $F(1, 204) = 12.37$, $p < .001$, as well as in the Phone B condition, $F(1, 204) = 6.55$, $p < .05$. In the Phone A & B condition, as predicted, this difference was not significant, $F(1, 204) =$

0.002, *ns*.[1]

Table 2.2. *Mean and Standard Deviation of Action Likelihood as a Function of Current Option and Difference in Attractiveness in Experiment 2.2*

	Difference in attractiveness			
	Large		Small	
Current option	*M*	*SD*	*M*	*SD*
Phone A	2.51_a	(1.90)	4.63_b	(2.87)
Phone B	2.94_a	(2.33)	4.49_b	(2.50)
Phone A & B	4.94_a	(2.95)	4.91_a	(2.39)

Note. Ratings were made on 11-point scales, with endpoints labeled *not likely* (0) and *very likely* (10), action likelihood in the Phone A & B condition indicated the likelihood to act on one of the phones, means with different subscripts per row differ at $p < .001$.

Discussion

Inaction inertia was found in both conditions with one current opportunity, but not in the condition where these two opportunities were offered together, providing a conceptual replication of Experiment 2.1. Additionally, unlike in Experiment 2.1, the other available option is this Experiment was not inferior, ruling out the alternative contrast explanation that people are more likely to act on the current opportunity because it looks better next to the other option in the choice set. As a result, the higher likelihood to act on the current options is due to the multiplicity of options and not the favorable contrast with the other

[1] To examine whether, and hopefully preclude that inaction inertia decreases in the Phone A & B condition simply because the chance that one of the phones is chosen is higher, the ratings on action likelihood on phone A and on action likelihood on phone B in the Phone A & B conditions were compared to the ratings on likelihood to act on phone A in the Phone A condition and on phone B in the Phone B condition. The results show the same pattern as the results discussed in the main text: The likelihood to act on Phone A and on Phone B both increase in the Phone A & B conditions. This shows that attenuation of the inaction inertia effect is not merely due to a higher chance of acting on one of the two phones.

available option. It again supports the reasoning that when multiple options are offered, the focus on the missed opportunity decreases leading to a higher likelihood to act.

EXPERIMENT 2.3

Experiments 2.1 and 2.2 showed that inaction inertia is attenuated when multiple *current* options are available. The reasoning behind this effect is that when multiple current options are taken into consideration the focus shifts from past losses to possible future gains. As a result, likelihood to act in the large difference conditions is as high as in the small difference conditions, in which the impact of the missed opportunity is less strong.

We can now conclude that multiple current options attenuate inaction inertia. However, we cannot be entirely sure if this is really because of a shift in focus away from the missed opportunity. Therefore, it was also tested whether the same reasoning can be applied to reverse the effect obtained in Experiment 2.1 and 2.2. If multiple current opportunities shift the focus from past losses to present possible gains, multiple missed opportunities should increase the focus to the past loss incurred by the missed opportunity. The loss felt over having missed two opportunities is likely to be greater than the loss felt over having missed one. Hence, missing multiple options would lead to inaction even when the difference in attractiveness is small. In other words, the expectation is again to find no effect of the difference in attractiveness between the missed and the current opportunities, but this time because likelihood to act on the current opportunity would be low overall.

Along the lines of Experiments 2.1 and 2.2, the experiment was designed such that each opportunity was missed separately in half of the conditions or that it was missed in combination with the other opportunity in the remaining conditions. This experiment was about deciding to book a vacation to a Greek Island. Participants read that they had either missed an opportunity to book a trip to the Greek island Rhodes, or to book a trip to the Greek island Kos, or that they missed both these opportunities. To replicate the typical single option inaction inertia studies, participants that only missed the opportunity to book a

trip to Rhodes [Kos] were subsequently offered a trip to Rhodes [Kos]. In the conditions in which participants missed both opportunities, they were subsequently offered either the trip to Rhodes, or the trip to Kos. This was done in order to adequately test whether the likelihood to act on a currently offered vacation to Kos or Rhodes was influenced by missing a single offer for a trip to the same island versus by missing two offers. The hypothesis was that when multiple opportunities are previously missed, the effect of difference in attractiveness decreases through the fact that likelihood to act on the current opportunity is reduced.

Method

Participants and design

Two hundred and forty college students (122 male, 114 female, 4 did not indicate gender, M_{age} = 22 years) at Tilburg University volunteered to participate in this experiment. The design was a 2 (Difference in attractiveness: large vs. small) × 3 (Missed option: Kos vs. Rhodes vs. both) × 2 (Current option: Rhodes vs. Kos) between-participants design. For theoretical reasons the conditions in which Rhodes was missed and Kos currently offered and Kos missed and Rhodes currently offered were not tested. Consequently, participants were randomly assigned to one of the eight remaining conditions.

Procedure and measures

Participants were provided with a questionnaire containing a scenario with the dependent measures. The scenario in the Kos-Kos and large [small] difference in attractiveness conditions read as follows:

> In your vacation you would like to get away to a sunny place for a few days. You were thinking about a trip to a Greek Island. When you pass a travel agency you happen to see an offer for a completely organized 10-day trip to a Greek Island. A trip to Kos now offered for €149 [€199] instead of €299. That is why you are eager to go to the travel agency. In the following week you have not had time and when you get to the travel agency the offer has expired. The travel agency has a new offer: a trip to Kos for €249 instead of €299.

In the Rhodes-Rhodes condition the initial offer for Rhodes was €199 [€249] instead of €349, and a subsequent offer for Rhodes was €299 instead of €349. Finally, in the remaining two conditions both offers were missed and subsequently either the trip to Rhodes or to Kos was offered. Thus, one offer was missed and one was currently offered, or two were missed and one was currently offered. After reading the scenario participants in the Kos condition indicated how likely they would book the trip to Kos, participants in the Rhodes conditions indicated how likely they would book a trip to Rhodes (0 = very unlikely. 10 = very likely).

Results

The purpose of the experiment was to test the hypothesis that likelihood to act on a choice option after missing a single more attractive offer was lower when the difference between the missed and present option was large than when this difference was small, but that this difference would decrease when two options were missed, because action likelihood would be low overall. The means of the action likelihood ratings are summarized in Table 2.3.

The design was not full factorial and because not all the cells were filled the data were analyzed with a $2 \times 3 \times 2$ ANOVA using the Type IV sum-of-squares method. This analysis yielded a main effect of difference in attractiveness, $F\,(1, 232) = 13.23, p < .001$, showing that after missing a much more attractive offer for either Kos, Rhodes or both people were less likely to act on the current offer(s) than after missing a slightly more attractive offer (revealing overall inaction inertia). Additionally, there was a main effect of missed option, $F\,(2, 232) = 6.07, p < .01$, showing that the likelihood to act on the subsequent offer for a trip to Kos and Rhodes differs depending on whether Rhodes or Kos or both were missed.

To test the specific prediction that action likelihood would be higher in the small difference conditions than the large difference conditions, but only when one option was missed and not when two options were missed two contrast analyses were ran. The first contrast showed that the effect of difference in attractiveness was significant in the Rhodes-

Rhodes condition, and in the Kos-Kos condition, $t(116) = -3.55$, $p < .01$. Thus, in these conditions, in which one option was missed, inaction inertia was replicated. The second contrast showed that the effect of difference in attractiveness was not significant in the both-Rhodes and both-Kos conditions, $t(116) = -1.65$, *ns*. This corresponds to the reasoning that the inaction inertia effect does not occur when two offers were missed and one offer was subsequently offered. Additional *t*-tests supported the reasoning more: the results showed a higher likelihood to act when the difference between the missed option was large than when the difference was small when only Rhodes was missed and currently offered, $t(57) = -3.27$, $p < .01$, and when only Kos was missed and currently offered, $t(59) = -2.40$, $p < .05$. However, there was no such difference in action likelihood when Both options were missed and Rhodes was currently offered, $t(58) = -0.99$, *ns*, nor when both options were missed and Kos was currently offered, $t(58) = -1.39$, *ns*.

Discussion

The current findings thus corroborated the basic reasoning. First of all, the manipulation of difference in attractiveness only affected likelihood to act when one offer was missed and not when multiple offers were missed. Thus, the effect that is generally seen as being characteristic for the inaction inertia effect was only apparent in the case of a single missed opportunity and not with multiple missed opportunities. Secondly, action likelihood was very low when multiple options were missed, which supports the notion that with multiple missed opportunities action likelihood decreases. These findings of Experiment 2.3 complement the findings of Experiments 2.1 and 2.2, and support the reasoning that multiple options affect likelihood to act because of a change in focus on the missed opportunity as a point of reference.

Table 2.3. *Mean and Standard Deviation of Action Likelihood as a Function of Missed and Current Options and Difference in Attractiveness in Experiment 2.3*

	Difference in attractiveness			
	Large		Small	
Missed-current options	*M*	*SD*	*M*	*SD*
Rhodes-Rhodes	4.90_a	(2.32)	6.57_b	(1.55)
Kos-Kos	4.03_a	(2.56)	5.47_b	(2.91)
Both-Rhodes	3.87_a	(2.71)	4.57_a	(2.78)
Both-Kos	3.90_a	(2.02)	4.73_a	(2.59)

Note. Ratings were made on 11-point scales, with endpoints labeled *not likely* (0) and *very likely* (10), means with different subscripts per row differ at $p < .05$

GENERAL DISCUSSION

The inaction inertia effect refers to the finding that people are less likely to act on an attractive opportunity only because they missed a more attractive opportunity earlier on. The present chapter reports the investigation of the effect of the presence of other options in the current or missed choice set. Three experiments showed that this availability of alternatives considerably impacts people's tendency to act. Experiment 2.1 and 2.2 showed that when the current opportunity is presented together with another option, the likelihood to act on the current opportunity *increases* such that inaction inertia is attenuated. Experiment 2.3 showed that when multiple options were missed, the likelihood to act on the current opportunity *decreases*, also attenuating inaction inertia. Based on these findings it is concluded that the presence of multiple options next to the current opportunity shift the focus away from the missed opportunity, and, alternatively, that multiple options next to the missed opportunity increase the focus on the missed opportunity.

Our reasoning about the role of the missed opportunity as reference point was supported by insights from the literatures on choices vs. opportunities and the joint vs. separate evaluation. The present findings showed that this reasoning can be extended to multiple options around

the reference point. the findings thus not only provide insights into the effect of multiple options on inaction inertia, they also support those previous literatures by replicating them in an inaction inertia context and by extending the reasoning from multiple options in the present to multiple options in the past.

The present research extends the finding of Zeelenberg and Van Putten (2005) that people switch to other brands than the brand previously on sale. If multiple options are offered the missed opportunity has less weight in the decision to act on one of the current opportunities. If another brand is the most attractive choice option among the current opportunities that brand is likely to be chosen. However, when the same brand is the most attractive option in the current choice set people will not necessarily switch. Instead they will be very likely to choose the same brand again.

The findings obtained in the present research appear to be relevant for other sequential decision making phenomena as well. The sunk cost effect, as an example, shows that decision makers are more likely to invest in a project when they already invested in it before (Arkes & Blumer, 1985). Indeed, Neal and Northcraft (1986) found that the sunk cost effect decreased by letting participants actively generate alternative courses of action than the currently failing course of action. Based on the current findings and previous findings on multiple options one might explain this finding by the effect of multiple options, which might have decreased the impact of the previous investments.

In conclusion, the influence of missed opportunities on subsequent decisions clearly depends on the size of choice set with which the decision maker is confronted. The availability of multiple options can both enhance and attenuate the impact of the missed opportunity on the decision to act on the current opportunity. After having missed a large set of attractive opportunities, we become extra inert, resulting in a failure to seize the moment and act on currently offered attractive opportunities. However, a multitude of options offered in the present, may reduce the tendency to dwell on the past and may help to seize the attractive opportunities of today. These findings are not only insightful with respect to the occurrence of inaction inertia in externally valid situations, but also reassuring with respect to our susceptibility to fall prey to this bias.

Chapter 3
When?

DECOUPLING THE PAST FROM THE PRESENT ATTENUATES INACTION INERTIA

Decisions are hardly ever made in a vacuum. On the contrary, they often follow on previous decisions within the same domain. Ample research has shown that this sequential element of our day-to-day decision making has implications for how and what we decide. Thus, behavioral decision making cannot be understood if one only looks at the options under current consideration and not at the temporal embedment of most decisions. A well-known fact is that decisions in the past often promote similar decisions in the present. For example, as shown by 'the foot-in-the-door-effect' (Freedman & Fraser, 1966), a decision to honor a large request is much more likely when the decision maker previously honored a smaller request within the same domain. The notion that previous decisions to act influence our current decisions to act is also present in the sunk cost effect, which describes the tendency "to continue an endeavor once an investment in money, effort, or time has been made" (Arkes & Blumer, 1985, p. 124). Interestingly, effects of past decisions on current decisions are also found for past decisions *not* to act. People are less likely to act on a 10% discounted offer because they did not act on a 50% discounted offer. This specific finding is referred to as inaction inertia (Tykocinski et al., 1995).

"Inaction inertia occurs when bypassing an initial action opportunity has the effect of decreasing the likelihood that subsequent similar action opportunities will be taken" (Tykocinski et al., 1995, p. 794). For example, participants who failed to purchase a ski pass for $40 were less likely to purchase the $90 ski pass than those who failed to buy the $80

ski pass (Tykocinski et al., 1995, p. 794). Thus, because the initial, more attractive action opportunity is missed (initial inaction), the second less attractive action opportunity is not taken (inertia). This basic finding has been replicated numerous times in many different choice-situations (Arkes et al., 2002; Butler & Highhouse, 2000; Kumar, 2004; Sevdalis et al., 2006; Tykocinski et al., 2004; Tykocinski & Pittman, 1998, 2001; Tykocinski et al., 1995; Zeelenberg et al., 2006; Zeelenberg & Van Putten, 2005). Put differently, one may conclude that inaction inertia is a very robust effect.

In the present research this assumed robustness was investigated in a series of three experiments. The investigation was prompted by questions such as: Does inaction inertia mean that every time we miss out on a good deal we stay inactive on subsequently offered deals? Are we always prisoners of our missed opportunities in the sense that we never let go of them? When we miss out on highly discounted underwear, will we refrain from buying underwear for the rest of our lives? This is probably not the case. There are probably limits to the inaction inertia effect; boundary conditions under which it will occur. But what then determines that we stay inactive after one inaction but get relatively quickly over another? To answer these questions let's turn to the literatures on mental accounting and transaction decoupling.

MENTAL ACCOUNTING AND TRANSACTION DECOUPLING

One of the core findings in the mental accounting literature is that events (i.e., decisions, outcomes, experiences, etc.) tend to exert the most influence on subsequent events when they are placed within the same mental account (Thaler, 1985, 1999). Events may differ in the degree to which they are processed as parts of the same account or not (Bonini & Rumiati, 2002; Henderson & Peterson, 1992). For example, people are less likely to buy a new theater ticket after having lost their theater ticket earlier than after having lost an equivalent amount of money (Kahneman & Tversky, 1984). The explanation for this finding is that the loss of the theater ticket is seen as part of the same mental account (e.g., for attending the theatre), while the loss of an equivalent amount of money is

seen as part of a different mental account (e.g., for various spending during the day). Consequently, the loss of the theatre ticket weighs heavier on the decision to buy a new one than the loss of the equivalent amount of money. On a more general level this implies that events that are placed within the same mental account exert more influence on each other than events that are placed into separate accounts.

The more two transaction opportunities are seen as relating to the same mental account, the more they are seen as "coupled" to each other (Prelec & Loewenstein, 1998). The literature on "transaction decoupling" has shown that coupling factors in economic transactions can have a profound influence on decision making (Gourville & Soman, 1998; Soman & Gourville, 2001; Van Dijk & Zeelenberg, 2003). For example, the decision whether or not to go skiing on a particular day under bad weather conditions is more influenced by the price people paid when people bought a one-day ski pass than when they bought a four-day ski pass (Soman & Gourville, 2001). When the costs of one day skiing is clear and has a one-to-one connection to the benefit of one day skiing, it is more tightly coupled to the decision to go skiing than when the cost is more ambiguous and has a less clear one-to-one connection. Soman and Gourville (2001, p. 31) hypothesized and showed that "This ambiguity should result in a dissociation or "decoupling" of the cost and the benefit of one day skiing, leading to a weaker attention to sunk costs and a relatively low likelihood of skiing in the poor conditions". These counterfactual decisions get less attention when they are decoupled from the current decision. This is consistent with the research on thinking and memory that indicates that concrete information is easier to consider, process, and remember (e.g., Reyes, Thompson, & Bower, 1980; Sherman, Cialdini, Schwartzman, & Reynolds, 1985). Thus, similar to having two events being booked to separate mental accounts, decoupled factors tend to exert less influence on each other.

In general, both the mental accounting and the transaction decoupling literature imply that the extent to which a previous event will affect the evaluation of a subsequent event depends on the strength of their association. This does not imply that for two events to affect each other they necessarily have to be placed in the same account. If two opportunities end up in the same mental account, a vague standard will

also make a comparison process much more difficult. Rather, when both events relate to the same mental account or when they are otherwise tightly coupled, they will exert a stronger influence on each other than when they relate to separate accounts or when they are only loosely coupled.

Now, how does this relate to inaction inertia? In inaction inertia situations people are less likely to act on an attractive opportunity because they missed a more attractive opportunity before. From the inaction inertia literature we can conclude that this occurs because inaction inertia requires a comparison of the current opportunity to a past. The occurrence of the inaction inertia effect requires the perception that a real opportunity existed, and one must be able to imagine taking advantage of this previous opportunity (e.g., Tykocinski & Pittman, 1998, 2001). Based on these basic findings it is suggested that a crucial factor for inaction inertia to occur is the fact that the current opportunity has to be tightly coupled to the past opportunity. Consequently, manipulations that reduce the tight coupling should weaken the influence of the past opportunity resulting in an attenuation of the inaction inertia effect. Therefore, the goal of the present research is to investigate whether tight coupling of the past and the current opportunity is necessary for inaction inertia to occur.

To obtain first insight in these boundary conditions, it is instructive to closely read the scenarios used to study inaction inertia. In typical inaction inertia situations the missed and the current opportunity are presented as highly related, and hence tightly coupled to each other. For example, in the Ski pass scenario the missed and the current opportunity are both about a ski pass in Ski Liberty. In other scenarios both opportunities concerned buying a pair of shoes (Arkes et al., 2002) or both opportunities concerned booking a vacation with the same destination (Tykocinski & Pittman, 1998, 2001; Zeelenberg et al., 2006). Again, another scenario described an opportunity to follow a course after being too late to register for the same course at an earlier time (Tykocinski & Pittman, 2001). These examples already show that the past and the current opportunity are typically highly comparable and highly related to each other. This comparability might be one reason why these opportunities are tightly coupled.

Other reasons why the past and the present opportunity might be tightly coupled in inaction inertia are suggested by the mental accounting and decoupling literatures. For example, previous research has shown that payments with credit card typically reduce the coupling between payment and purchase, especially when compared to payments with cash and checks (Prelec & Simester, 2001). According to Thaler (1999) a decoupling characteristics of credit card payments is that because of the time between the two events of payment and purchase the payment is not only later than the purchase, but also seen as more separated from it. Time is indeed a well-known example of increasing the perceived psychological distance between two events (e.g., Trope & Liberman, 2003). The closer an event was to happen, in time or otherwise, the more it is associated to related decisions and to judgments of probabilities and negativity of related events. Thus, another way two related events seem to become less tightly coupled is by increasing the psychological distance between them. Inaction inertia research has already shown that time attenuates the inaction inertia effect (Tykocinski & Pittman, 2001; Zeelenberg et al., 2006). This thus provides first support for the prediction that increasing the distance between the missed and the current opportunity decreases the inaction inertia effect. However, time is but one factor that increases distance. Moreover, in this previous research the attenuated inaction inertia effect could not be related to decoupling, since this was not measured. It does indicate that psychological closeness in typical inaction inertia situations might be a second reason why the missed and the current opportunity might be tightly coupled.

Thaler (1999) also suggests that when a payment of a product is part of a bigger bill the costs of that product are taken less into account in the purchase decision. As described earlier, Soman and Gourville (2001) indeed showed that the costs and benefits of one day skiing are less tightly coupled to each other when they are part of the costs of a four-day skiing pass, because the costs of one day skiing are then unclear or ambiguous. Thus, another way in which two related events become less tightly coupled is when there is ambiguity concerning information about that relationship. In typical inaction inertia situations information about the difference in attractiveness is always very clear. For example, the price of the missed opportunity (e.g., Tykocinski et al., 1995), or the

quality of the teacher of the course you cannot register to anymore (Tykocinski & Pittman, 2001) is always described explicitly in the scenario that the participants read. This clear and unambiguous nature of information might be a third reason why the two opportunities might be tightly coupled to each other.

OVERVIEW OF THE CURRENT RESEARCH

In the present research the influence of these three coupling factors on the occurrence of inaction inertia was tested. The hypothesis was that a factor that attenuates the tight coupling (specifically through manipulations of ambiguity of information, psychological distance and comparability) between the past and the present opportunity attenuates the inaction inertia effect.

In Experiment 3.1 the focus was on the ambiguity of information. The results show that inaction inertia occurred when there was clear information about the missed opportunity, but that it disappeared when this information was ambiguous. Experiment 3.2 focused on how close the missed opportunity was in terms of the sequence of decisions that was required to obtain it. When an extra decision would have been required to obtain the more attractive missed opportunity inaction inertia decreased. Finally, Experiment 3.3 focused on the comparability between the missed and current opportunity, and found that the less comparable the missed and the current opportunities were the less inaction inertia occurred.

EXPERIMENT 3.1: AMBIGUOUS INFORMATION ABOUT THE MISSED OPPORTUNITY

In the typical inaction inertia study the information that determines the attractiveness of the missed opportunity is clear and unambiguously stated. In real life, however, we may not always know exactly how attractive previous opportunities were. People can be aware of the fact that they missed an attractive action opportunity, but do not know, or

forgot, the exact degree of attractiveness. For example, in real life it can be clear that the teacher of the missed course was better, but it is often not exactly clear how much better, or in which domain. Or it can be clear that the ski pass that is now offered for $90 has been offered for less previously, but a person is not sure, or forgot whether it was offered for $40 or $80. This effect of ambiguous information on inaction inertia, however, has not yet been studied.

For the current purpose the effects of ambiguity were addressed, because it can be seen as a typical decoupling factor. The idea of an ambiguous event weakening the attention to this event returns in the literature on the disjunction effect, which shows that consequences of an event are taken more into consideration when the outcome of this event is certain than when it is ambiguous (Shafir & Tversky, 1992; Tversky & Shafir, 1992). For example, when deciding to accept or reject a second gamble, people took information about the outcome of a first gamble into consideration when this information was certain. The majority of people accepted a second gamble when the first gamble was won and also when a first gamble was lost. However, when it was unclear whether the first gamble was won or lost the majority of people decided to reject the second gamble. In fact, the percentage of people accepting the second gamble in this disjunctive condition was similar to that of people that did not play a prior gamble. Thus, people in this disjunctive condition acted similarly as people that did not play a prior gamble at all. These are remarkable findings. Why would people not opt for a second gamble when it was uncertain whether they won or lost, whereas they would be willing to continue if they won and also when they lost? The interpretation offered by Tversky and Shafir (1992, p. 308) is that: "Instead, not knowing whether they have won or lost the first gamble, people segregate the second gamble and evaluate it from their current position". In other words, people do not base their current decision on ambiguous information and that decisions that are surrounded by uncertainty are not coupled to a current decision.

In agreement with these insights, the suggestion is that ambiguous information may decrease the inaction inertia effect when information about the missed opportunity is ambiguous. This is also based upon findings by Van Dijk and Zeelenberg (2003) concerning effects of

ambiguity of information on decision making in sunk cost situations. Their studies show that most people decide to continue a project once either certain high (€1,500,000) or low (€500,000) costs are already made, but that people are more likely to terminate the project when the costs made were ambiguous (€500,000, or €1,500,000, or any amount in between), or when no previous costs were made before. In accordance with Tversky and Shafir (1992), Van Dijk and Zeelenberg argue that ambiguous information has this decoupling effect because ambiguous information is discarded as a reason to base a decision on. This discarding of information can be either motivationally driven, that is, people opportunistically interpret the ambiguous information such that it serves their current goals best, or this discarding of information happens because people find the ambiguous information cognitively too difficult to process (Soman & Gourville, 2001). Both possibilities lead to the same conclusion that current decisions will be more affected by prior outcomes and decisions when these prior outcomes are certain than when the prior outcomes are ambiguous. In this latter case, people are more likely to act similar to a situation in which no information about prior outcomes would be available at all.

The present experiment drew on these insights presented above in order to understand the boundary conditions of inaction inertia. When indeed ambiguous information is discounted, the typical inaction inertia effect should be obtained when information about the missed opportunity is clear and certain, but not when this information is ambiguous. To test this hypothesis likelihood to act was compared across four conditions in which people were deciding about buying a television for €180 instead of the €200 regular price. In two conditions this current opportunity was offered after missing the opportunity to buy the television for €100 (Large Difference) or for €165 (Small difference). In the Control condition no missed opportunity was mentioned. In the Ambiguous condition the attractiveness of the missed opportunity was ambiguous. It was either €100 or €165, dependent on the flip of a coin. The prediction is that people in this situation would discard this info and act as if no information about the missed opportunity was present, that is, as in the control condition.

Method

Participants and design
One hundred twenty students (58 males, 62 females, $M_{age} = 21$) at Utrecht University volunteered to participate in this study. They were randomly assigned to one of the conditions of a four group design (Difference in Attractiveness: Large vs. Small vs. Ambiguous vs. Control).

Procedure and materials
Participants were approached individually at several places on the University Campus. They were provided with a one-page questionnaire containing the scenario describing a decision to buy a television. Action Likelihood was assessed with the following question: "How likely are you to buy the television for €180?" (0 = *not at all likely*; 10 = *very much likely*). The scenario in the Large [Small] Difference condition read as follows (translated from the original Dutch):

> You want to have a new television for some time now. In an ad of a local store you saw a nice set. You are interested in the television and decide to go to the store. When you get there you see that it is offered for €180 instead of the regular €200.
> When you discuss the television with a salesperson, you find out that the store had special theme last week, the 'Coin festival'. That is why the television was then offered for €100 [€165] instead of €200.

In the Ambiguous condition, the text after "the store had a special theme last week, the 'Coin festival'", read:

> That is why the television was then offered for either €100, or €165 instead of €200. That is because your discount was determined by the flip of a coin. Therefore it is unknown how big the offer would have been.

In the Control condition the part of the scenario with information about the missed offer was left out.

Testing the Material

To test this Ambiguity manipulation a separate experiment was ran in which 75 different participants (41 men, 34 women, M_{age}= 23) were randomly assigned to the three experimental conditions followed by three questions on how a) related, b) coupled, and c) associated they thought the missed and the current opportunities were (0 = *not at all*; 10 = *very much*). Together these questions made a reliable scale (α = .89), called the Coupling Scale. A One-way ANOVA of the ratings on the Coupling Scale on the three conditions showed an effect, $F(1, 72) = 5.74$, $p = .01$. Planned comparison t-tests show that coupling was less in the Ambiguous condition ($M = 4.74$, $SD = 1.94$) than in the Large Difference condition ($M = 6.34$, $SD = 2.64$), $t(48) = 3.43$, $p < .01$, and the Small Difference condition ($M = 5.52$, $SD = 2.50$), $t(48) = 2.09$, $p < .05$. Coupling did not differ significantly between the Small Difference and the Large Difference condition, $t(48) = -1.31$, *ns*. These results confirm that indeed the manipulation of ambiguous information had the predicted decoupling effect. Let us now turn to the results of Experiment 3.1.

Results

The inaction inertia effect was expected when information about the attractiveness of the missed opportunity was clear, but not when this information was ambiguous. Specifically, the expectation was to find differences in the likelihood to act on the current opportunity between the Large and Small Difference conditions. However, in the Ambiguous condition the expectation was that people take information concerning the missed opportunity less into account and thus act similar as in the Control condition. The results confirm these expectations (See Table 3.1). A One-way ANOVA on the Action Likelihood ratings revealed a significant effect, $F(3, 116) = 17.20$, $p < .001$. Planned comparison t-tests show that Action Likelihood in the Large Difference condition was lower compared to the Small Difference condition, $t(58) = 3.26$, $p < .01$, the Control condition, $t(58) = -6.84$, $p < .001$, and the Ambiguous condition, $t(58) = -5.00$, $p < .001$. Action Likelihood was also lower in the Small Difference condition than in the Ambiguous Difference condition, $t(58) = -1.97$, $p = .05$, and than in the Control condition, $t(58) = -3.71$, $p < .001$.

Table 3.1 *Mean and Standard Deviation of Action Likelihood as a Function of Difference in Attractiveness in Experiment 3.1*

Difference in Attractiveness	*M*	*SD*
Large	2.97_a	2.50
Small	4.97_b	2.25
Ambiguous	6.17_c	2.47
Control	7.07_c	2.13

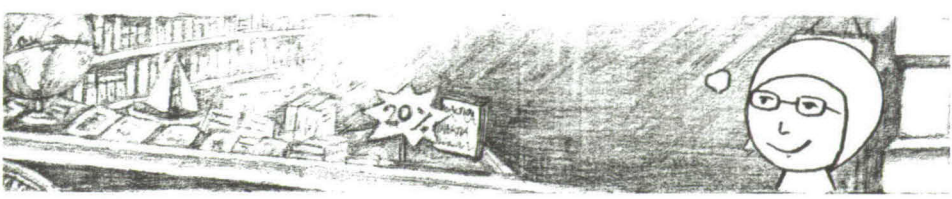
Note. Ratings were made on 11-point scales, with endpoints labeled *not likely* (0) and *very likely* (10). Means with different subscripts differ at $p < .05$.

However, the Ambiguous Difference condition did not differ from the Control Condition, $t(58) = 1.51$, *ns*.

Discussion

The results show that participants fell prey to inaction inertia when they missed out on a €100 offer, and (but to a lesser extent) when they missed out on a €165 offer. However, when the missed opportunity was ambiguous (either €100 or €165), participants acted as if they had not missed an offer at all. Note that the average action likelihood in the ambiguous condition did not fall halfway between the small and large difference conditions, which would be the prediction of an expected value model. This finding is intriguing and in perfect agreement with previous findings on the disjunction effect. It is also consistent with the current inference that ambiguity may prevent a coupling between the two action opportunities and hence attenuate the inaction inertia effect.

One might wonder if it is really ambiguity driving this result? For instance, what would happen if the missed opportunity was a 50% chance of paying €100 and a 50% chance of paying €130? In this case there would still be ambiguity regarding the attractiveness of the difference in attractiveness, but of course the ambiguity would be reduced, because *both* values are now much more attractive than the current €180 offer.



Two additional conditions of Experiment 3.1 were ran to answer this question. In these conditions, the television could again be purchased for €180 instead of the €200 regular price, but in the first condition an offer for the television of €130 was missed, and in the second condition an offer of €100 or €130 (again depending on the flip of a coin) was missed. The results show that the likelihood to act on the €180 offer was again lower when a €130 offer was missed ($M = 4.17$, $SD = 2.00$), than when the missed offer was either €100 or €130 ($M = 5.63$, $SD = 2.54$); $t(58) = -2.49$, $p < .05$, and it did not differ from the other ambiguous condition in which the missed offer was either €100 or €165, $t(58) = 0.83$, *ns*. The likelihood to act was higher when a €130 offer was missed than when the €100 was missed, $t(58) = 2.05$, $p < .05$. These additional findings thus show that even with reduced ambiguity with regard to the attractiveness of the missed opportunity the results of Experiment 3.1 were replicated.

Experiment 3.1 showed that manipulating ambiguity of information about the attractiveness of the missed opportunity attenuated the inaction inertia effect. This reveals that the strong association between the missed opportunity and the current opportunity can be influenced by characteristics of the missed opportunity. the next experiment investigates decoupling characteristics of the decision path that might determine the coupling of the missed opportunity and the current opportunity.

EXPERIMENT 3.2: ADDITIONAL STEPS BETWEEN THE MISSED AND THE CURRENT OPPORTUNITY

One may think of the process of decoupling two sequential opportunities as one of increasing the distance between them (see also Thaler, 1999). Two factors that are very close to each other are more likely to be tightly coupled to each other than two factors that are seen as more distant from each other. For example, people judge a negative outcome more negatively if they were only one step away from preventing it (Kahneman & Tversky, 1982). Likewise, people judge themselves luckier if they were only one step away of a worse outcome (Teigen, 1996). Thus, the closer a missed event was, the more it is coupled to

events that are successive in evaluation. The same inference can be made with respect to inaction inertia. In typical inaction inertia situations the missed opportunity was only one step away in the sense that only one decision was to be made, namely to go to the store earlier. But what if the missed opportunity was two steps away? What if an extra decision would have been required to obtain the more attractive opportunity? The argument is that this increased distance to the missed opportunity leads to a higher likelihood to act on the current opportunity.

In everyday life one often finds that an extra decision is required for obtaining attractive discounts. For instance, airline companies often provide special offers to frequent flyers only. Also, shops frequently only offer their regular customers (often via customer cards) special discounts. These are attractive action opportunities that are known to everybody but only relevant to people that made an extra decision in the sense that they purchased more items earlier or they made the decision to obtain customer cards. If this additional decision increases the psychological distance to the action opportunity, it may have profound implications for the occurrence of inaction inertia. This factor, however, has not yet been studied in inaction inertia research. In the present experiment it was manipulated whether an extra decision was necessary to get the missed opportunity and the expectation was that inaction inertia was restricted to situations where this extra decision is not necessary.

Half of the participants read a typical inaction inertia scenario. The other half read essentially the same scenario, but also learned that in order to obtain the missed opportunity they should have made one additional decision, that is, they should have decided to save coupons.

Method

Participants and design

Two hundred students (113 females, 85 males, 2 unknown, $M_{age} = 22$) at Tilburg University volunteered to participate in this study. They were randomly assigned to one of the five conditions in a 2 (Difference in Attractiveness: Small vs. Large) × 2 (Extra Decision: No vs. Yes) + 1 (Control) between participants design.

Procedure and materials

Participants were approached at several places on the University Campus. They were provided with a one-page questionnaire containing the scenario describing a decision about buying a coffee machine. The scenario in the Large [Small] Difference condition read as follows (translated from the original Dutch):

> You consider buying a new coffee machine. On the university campus this week you overheard a conversation, in which somebody told he had bought the same coffee machine you would like with a 50% [20%] discount and that this discount lasts until next week. Although you intended to go there, you didn't get to the store in time and the discount expired. A few days later you walk by the store and see the same coffee machine with a 10% discount.

In the Extra Decision conditions it was added that participants found out that to obtain the missed discount they should have decided to save coupons. Because they did not decide to save coupons earlier the missed opportunity was not directly available to them.

Participants in the Control condition only read about the 10% offer and did not receive information about a missed offer. Action Likelihood was assessed with the question: "Are you going to buy the coffee machine with a 10% discount?" (1 = *not likely*; 7 = *very likely*).

Testing the Material

Again, the extra step manipulation was tested in a separate experiment. Eighty different participants (30 men, 50 women, M_{age}= 22) were provided with the same stimulus material as in the 2 × 2 part of the design of this experiment, followed by the same Coupling Scale as used in Experiment 3.1 (α = .91). There was only a main effect of 'Extra step' on the Coupling Scale showing that coupling was higher in the No Extra Step conditions (M = 6.05, SD = 0.33) than in the Extra Step Conditions (M = 4.93, SD = 0.33), $F(1, 76) = 6.01$, $p < .05$. There was no effect on the Coupling Scale of Difference in Attractiveness, $F(1, 76) = 0.00$, *ns*, nor an interaction effect, $F(1, 76) = 0.50$, *ns*. This result confirmed that the manipulation of an extra step had the predicted decoupling effect. Let us now turn to the results of Experiment 3.2.

Results

The first analysis investigated whether inaction inertia occurred when the missed opportunity required an extra decision or not. For this purpose the four conditions of the 2 × 2 design were used. In particular, Action Likelihood should be lower when the difference between the missed and current opportunity was large than when this was small, but only when obtaining the missed opportunity did not require an extra decision; this effect should disappear when an extra decision was necessary to obtain the more attractive opportunity. The results are summarized in Table 3.2. A 2 × 2 ANOVA showed a significant main effect for Difference in Attractiveness, $F(1, 156) = 16.48, p < .001$, and for Extra Decision, $F(1, 156) = 6.93, p < .001$. These results were qualified by a significant interaction effect, $F(1, 156) = 4.03, p < .05$. Simple effect tests showed that the effect of Difference in Attractiveness was significant in the No Extra Decision condition, $F(1, 156) = 18.41, p < .001$, replicating the inaction inertia effect, but not in the Extra Decision condition, $F(1, 156) = 2.10$, *ns*.

Next, the Control condition in which no previous opportunity was missed was compared to the four experimental conditions. A 5-group one-way ANOVA on the Action Likelihood ratings yielded a significant effect, $F(4, 195) = 8.94, p < .001$. Planned contrast analysis tested the prediction that only participants in the Large Difference, No Extra Step condition showed a lower likelihood of acting on the opportunity to buy the coffee machine, compared to the other four conditions. The results confirmed this prediction, $t(195) = -5.63, p < .001$. Thus, only after people missed a much more attractive opportunity that did not require an extra decision, likelihood to act on the current opportunity decreased. A second contrast analysis confirmed the prediction that the Extra Decision conditions did not differ from the Control condition, $t(195) = 1.46$, *ns*. The decision to act on the present opportunity in the Extra Decision conditions, both when the difference between the missed opportunity was large and when it was small, resembled the decision to act as if there was no missed opportunity at all.

Table 3.2. *Mean and Standard Deviation of Action Likelihood as a Function of Extra Step and Difference in Attractiveness in Experiment 3.2*

Extra Step				
No		Yes		
Difference in Attractiveness		Difference in Attractiveness		
Large *M (SD)*	Small *M (SD)*	Large *M (SD)*	Small *M (SD)*	Control *M (SD)*
3.28_a (1.88)	4.98_b (1.80)	4.58_b (1.68)	5.15_b (1.71)	5.33_b (1.61)

Note. Ratings were made on 7-point scales, with endpoints labeled *not likely* (1) and *very likely* (7). Means with different subscripts differ at $p < .05$.

Discussion

The results clearly show that when an extra decision was required to obtain the missed opportunity the inaction inertia effect is less likely to occur. Moreover, in this situation the decision to act on the current opportunity resembles the decision to act in the control condition, in which there was no information about the missed opportunity. These results are consistent with the reasoning that increased distance in terms of decision sequence may decouple the past from the present.

Experiment 3.2 showed that an increased distance to obtain the missed opportunity decreases the inaction inertia effect. Increased distance can be viewed as a factor that decreases the likelihood of actually associating the missed to the current opportunity. In the third and final experiment focused on coupling characteristics of the association between the missed and the current opportunity. This experiment was designed to investigate whether a factor that influences the strength of the association between the missed and the current opportunity also influences the occurrence of inaction inertia. Therefore, the next experiment investigated the influence of comparability of the missed and the subsequent opportunities on inaction inertia.

EXPERIMENT 3.3: COMPARABILITY OF THE MISSED AND THE CURRENT OPPORTUNITY

Until now, in most inaction inertia research the missed and current options are highly comparable. This might be a reason why the past opportunity influences the decision about the present opportunity. In Experiment 3.3 comparability between the missed and the current opportunity was manipulated and the effects on inaction inertia were tested. The reasoning behind this was that the more comparable objects are, the more strongly they are associated with each other and, consequently the more coupled they are. Studies on mental accounting have revealed that the stronger two products are related (e.g., sport and city shoes), the more likely it is that they are placed in one mental account (Bonini & Rumiati, 2002; see also Kahneman & Tversky, 1984). Also, these studies showed that the less two objects are related (e.g., sport shoes and a watch), the more they are evaluated as part of two different mental accounts. Comparability thus seems to be a coupling factor. This is consistent with earlier behavioral decision research showing, for example, that lesser comparability between trading objects leads to more difficulty in computing gains and losses in the trade (Van Dijk & Van Knippenberg, 1998).

On the basis of the above it was predicted that reduced comparability of the missed and the current opportunity decreases the influence of the missed opportunity on the current opportunity. This will lead to a higher focus on the attractiveness of the current opportunity by itself. As a result, likelihood to act on the current opportunity will resemble likelihood to act on the opportunity when no opportunity is previously missed.

Objects are seen as less comparable when they come from different product categories (Johnson, 1984; Van Dijk & Zeelenberg, 2005). That is why in the present experiment the product category of the past opportunity was manipulated. Participants indicated their likelihood of buying a sofa with a 20% discount. They either missed a previous opportunity to buy a sofa with a 50% discount (High Comparability), or they missed a previous opportunity to buy a chair with a 50% discount

(Low Comparability), or they did not learn about a missed opportunity at all (Control). The prediction was that, compared to people missing a 50% discount on another sofa, people who missed a more attractive opportunity to buy a chair would be more likely to act on the 20% discount on the sofa. In other words, the prediction was that decreased comparability would decrease the inaction inertia effect.

Method

Participants and design
Sixty-three students at The Hague University (33 males, 25 females, 5 unknown, $M_{age} = 21$) volunteered to participate in this study. They were randomly assigned to one of the three conditions (High Comparability, Low Comparability, or Control).

Procedure and materials
Participants were approached individually at several places at the campus. They were provided with a one-page questionnaire containing the scenario describing a decision to buy a sofa. The scenario in the High Comparability [Low Comparability] condition read as follows (translated from the original Dutch):

> You would like to have a chair or sofa for in your room. You have seen some nice chairs and sofas in a window shop last week. Although you were interested, you did not get to the store that week. By the time you get to the store you find out that the sofas [chairs] had a 50% discount last week. A salesman tells you that the offer on sofas [chairs] is not valid anymore, but that this week you get a 20% discount on a sofa.

Participants in the control condition only read about the 20% offer and not about a missed offer. Action Likelihood was assessed via the question: "How likely are you to buy the sofa with a 20% discount?" (0 = *absolutely not*; 10 = *certainly).*

Testing the Material

Again, the comparability manipulation was tested in a separate experiment. Thirty different participants (14 men, 16 women, M_{age}= 22)received the stimulus material of one of the two experimental conditions of this experiment followed by the same Coupling Scale as used in Experiments 3.1 and 3.2 (α = .83). The results show that coupling was higher in the High Comparability condition (M = 6.10, SD = 1.85) than in the Low Comparability condition (M = 5.07, SD = 2.54), $t(28)$ = 2.74, p = .01. This result confirmed that the manipulation of low comparability had the predicted decoupling results. Let us now turn to the results of Experiment 3.3.

Results

Inaction inertia was expected when the missed and current opportunities were comparable, and not when they were less comparable. In particular, a large difference in Action Likelihood between the control and the high comparability conditions was expected, and a smaller difference in Action Likelihood between the Control and the Low Comparability conditions. The results are summarized in Table 3.3. A One-way ANOVA showed that the three conditions differed significantly, $F(2, 60)$ = 3.45, $p < .04$. Planned comparison t-tests showed that the likelihood of action in the High Comparability condition was lower than in the Control condition, $t(41) = -2.59$, $p < .01$, and the Low Comparability condition, $t(40) = -1.62$, $p = .056$. The likelihood of acting on the second opportunity in the Low Comparability condition and Control condition did not differ significantly, $t(39) = -0.97$, *ns*.

Discussion

The results of this experiment show that a decreased degree of comparability decreases the inaction inertia effect. The decision to act on the current opportunity was influenced more when the missed opportunity was highly comparable to the current opportunity than when it was not. This again indicates that the inaction inertia effect decreases, the less the current opportunity is evaluated in light of the missed opportunity, or the less tightly coupled it is to the missed opportunity.

Table 3.3 *Mean and Standard Deviation of Action Likelihood as a Function of Comparability in Experiment 3.3*

Comparability	*M*	*SD*
High	4.59_{a}	2.15
Low	5.70_{ab}*	2.27
Control	6.43_{b}	2.50

Note. Ratings were made on 11-point scales, with endpoints labeled *absolutely not* (0) and *certainly* (10). Means with different subscripts differ at $p < .05$.
*Means in the Low Comparability and Control conditions differ at $p < .06$.

GENERAL DISCUSSION

This chapter concentrated on a key element in the inaction inertia effect: the coupling of the past opportunity to the current decision. Prior research on the inaction inertia effect has more or less treated coupling of the missed and the current opportunity as a given by focusing on situations where this was typically the case. By explicitly addressing the coupling itself, and building on prior theorizing on mental accounting and transaction decoupling, not only inaction inertia could be investigated, but also its boundary conditions. More specifically, this research studied the extent to which coupling of the missed and the current opportunity affected the occurrence of inaction inertia. Three experiments revealed that the inaction inertia effect decreased when the missed and the current opportunity are decoupled from each other.

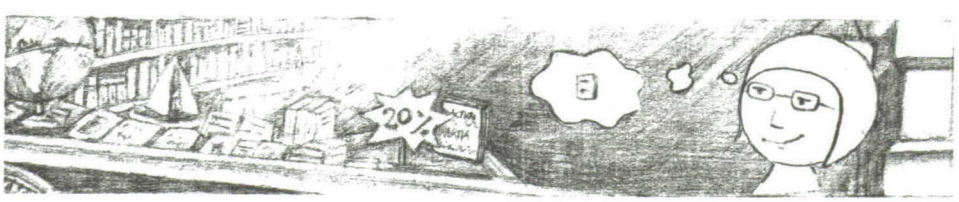
Experiment 3.1 focused on decoupling characteristics of the missed opportunity. The results showed that likelihood to act on the current opportunity increased when the information about the attractiveness of the missed opportunity was ambiguous. Experiment 3.2 focused on decoupling factors in the decision path that was required to obtain the missed opportunity. The results showed that likelihood to act on the current opportunity increased when an extra decision was necessary. Experiment 3.3 focused on the strength of the association between the missed and the current opportunity. The results showed that the less the

missed and the current opportunity were comparable to each other, the less likely inaction inertia was to occur.

It is interesting to see that the present research found one general result (decoupling the past from the present attenuates inaction inertia) brought forward by three different factors. The presence of a coin toss (Exp. 3.1) manipulated the ambiguity with regard to the attractiveness of the missed opportunity, whereas whether people should have saved coupons (Exp. 3.2) or whether people missed a discount on a the same or another product category (Exp. 3.3) manipulated the closeness and the comparability of the missed opportunity, independent of the attractiveness of the missed opportunity. These factors can be seen as three different factors that share a general consequence, namely they decouple.

The present focus on the coupling between the past opportunity and the current decision clearly revealed that there are boundary conditions to the inaction inertia effect. Earlier studies on inaction inertia could be interpreted as suggesting that once we miss out on an attractive action opportunity we will remain inactive on subsequent related opportunities. The present research, however, shows that we are not always haunted by past inactivities and that we are not doomed to a state of inertia every time we miss out on an attractive action opportunity. In fact, the present research has shown that common factors in daily life prevent this inertia from setting in. Frequently, highly attractive action opportunities are framed as special events that cannot be compared with normal action opportunities, or that are not equally close to everybody. Also, information about attractive opportunities can often be unclear. Either you know that there was a very attractive action opportunity, but cannot exactly remember what it was, or shops give the information that they offer discounts up to 50%. The present studies indicate that under these conditions inaction inertia is not likely to occur and that in daily life this state of inertia does not necessarily set in.

The present research showed that tight coupling is a very important boundary condition for inaction inertia to occur. Of course, there may be other boundary conditions influencing the inaction inertia effect. For instance, for inaction inertia to occur there should be a significant difference in attractiveness of the two action opportunities, which is a



crucial element which was included in almost all the demonstrations of inaction inertia. Moreover, previous research has shown that inaction inertia does not occur when the costs of continued inaction are too high, for example because people need the opportunity to buy clothes for a wedding that will take place in two days (Tykocinski & Pittman, 1998). These findings can be interpreted as revealing other boundary conditions for the occurrence of inaction inertia.

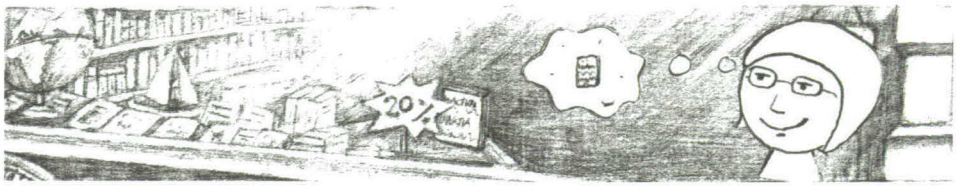
By focusing on decoupling a central but neglected element of the inaction inertia phenomenon was investigated. With this approach new insights were gathered that can be incorporated in the two main explanations of inaction inertia to date. One of these main explanations is the regret explanation; the other is the devaluation explanation. The regret explanation posits that when making their current decision, people may generate counterfactuals such as "if I had acted sooner my outcomes would have been so much better". Staying inactive on the second opportunity would be a means to avoid these thoughts (Tykocinski & Pittman, 1998). The valuation explanation posits that the missed opportunity is used as an anchor against which the value of the current opportunity is valuated (Arkes et al., 2002). Note that both explanations presume that people couple their current decision to the missed opportunity. As a consequence, one could argue that decoupling factors like the ones currently revealed will reduce anticipated regret and devaluation of the current outcomes.

The main contribution of the present research is the insight that coupling of the missed and current opportunities is a necessary condition for inaction inertia to occur. Now that we know this, it is interesting to look at previous inaction inertia literature to see whether earlier findings may be explained in terms of the (de)coupling mechanism. Looking at this literature with the current knowledge, other decoupling factors may be identified. For instance, the present Experiment 3.2 discussed decoupling in terms of psychological distance. Apart from being close or distant to an event because more or less decisions were required to get there, there are other ways in which two action opportunities may be distant. An increase in temporal distance has been shown to decouple the association between two events (Gourville & Soman, 1998) and it has been shown to attenuate inaction inertia (Tykocinski & Pittman, 2001,

Exp. 2; Zeelenberg et al., 2006, Exp. 2). Similar effects have been obtained for spatial distance. Arkes et al. (2002) found that American participants are influenced by missing a discount in their home town (Athens, OH), but not by missing a discount in South East Asia. These are two instances in which increased distance between the missed and the current opportunity decreased the inaction inertia effect. With the present findings in mind we might also conclude that these effects of decreased inaction inertia with increased temporal and spatial distance to the missed opportunity are due to the decoupling effect of distance.

Another related decoupling factor might be the difference of source offering the two opportunities. Previous results indicate that inaction inertia decreases when the missed opportunity is offered by another provider (Butler & Highhouse, 2000; Zeelenberg et al., 2006, Exp. 5). Other factors might similarly influence inaction inertia such as difference of brand, or color, or size, or reason to purchase between the missed and the current opportunity. These might also be factors that have a decoupling effect by influencing distance and comparability between the missed and current opportunity and that thus might attenuate the inaction inertia effect.

Importantly, the implications of the present findings go beyond the inaction inertia field and speak to many related phenomena. As argued earlier, most of our decisions are made in response to earlier outcomes or decisions. Hence, the decoupling effects presented here can be expected to generalize to related phenomena in which previous decisions influence current decisions. Indeed, previous research has showed that the foot-in-the-door effect can be decreased and even reversed when there is a larger amount of time between the first and the second request and when the second request is offered by another requester than the person making the first request (Chartrand, Pinckert, & Burger, 1999). Again, these can be viewed as factors that decrease the tight coupling between the first and the second request and therefore decrease the foot-in-the-door effect. Other decoupling factors may also decrease the foot-in-the-door effect, for example, an ambiguous, or a less comparable first request may not lead to an increased likelihood to act on the second request. The same results may be expected for similar effects of sequential decision making, such as the door-in-the-face technique (Cialdini et al., 1975) or the low-



ball procedure (Cialdini, Caccioppo, Bassett, & Miller, 1978). Of course, further research is needed to examine these expectations.

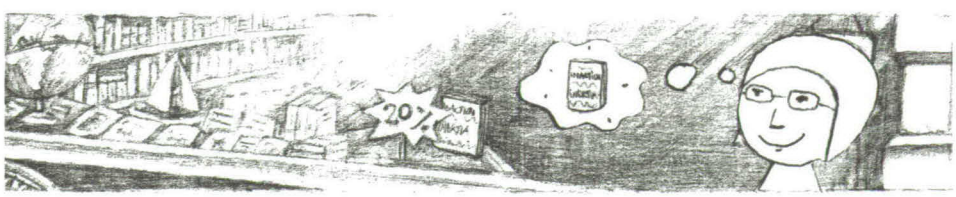
In conclusion, by using insights derived from the mental accounting and transaction decoupling literature, the present research showed that there are clear boundary conditions to the inaction inertia effect. Inaction inertia does not entail that every time we miss out on a good deal we stay inactive on subsequently offered deals and that we are not always prisoners of our missed opportunities in the sense that we never let go of them. In everyday terms, this means that we will not refrain from buying underwear the rest of our lives when we miss out on highly discounted underwear. And that is a reassuring thought.

Chapter 4
Who?

DEALING WITH MISSED OPPORTUNITIES: ACTION VS. STATE ORIENTATION MODERATES INACTION INERTIA

People differ in how they cope with missed opportunities and bad decisions. Some people dwell on missed opportunities, feel bad about them for a long time and do not seem to be able to leave the past behind them. Others get over those failures relatively quickly and focus on how to improve the here and now instead. Extensive research has demonstrated that these differences in coping reflect a fundamental dimension in how people approach current challenging situations and referred to it as state versus action orientation (see for a review, Kuhl & Beckmann, 1994). The present research investigates how this orientation influences an important behavioral consequence of missed opportunities called inaction inertia (Tykocinski et al., 1995). Inaction inertia refers to the effect that people, after missing out on an initial attractive opportunity, are less likely to act on further opportunities despite their objective attractiveness. If people differ in the way they cope with missed opportunities, the influence of missed opportunities on current decisions should differ accordingly. This chapter reports two experiments that demonstrate a weaker inaction inertia effect for action-oriented people than for state-oriented people.

Inaction inertia means that decisions to act on an attractive opportunity in the present are negatively influenced by inactions from the past. For example, although people may find the opportunity to book a vacation on discount for $900 instead of $1000 very attractive, they will



decline it when they missed an earlier opportunity to book it for $400. Inaction inertia is demonstrated when likelihood to act on an attractive current opportunity is lower when the difference in attractiveness between the missed and the current opportunity is large than when it is small. Thus, the more attractive the missed opportunity (initial inaction) was, the lower the likelihood that people will act on an attractive action opportunity now (inertia). This effect is very robust and has been found for numerous different decisions, such as for buying shoes or beer, joining fitness centers, booking vacations, investing in the stock market and registering for college courses (Arkes et al., 2002; Butler & Highhouse, 2000; Kumar, 2004; Sevdalis et al., 2006; Tykocinski et al., 2004; Tykocinski & Pittman, 1998, 2001; Tykocinski & Pittman, 2004; Tykocinski et al., 1995; Van Putten et al., 2007; Zeelenberg et al., 2006; Zeelenberg & Van Putten, 2005).

Because of its robustness, one might expect that whenever people miss a more attractive opportunity to act, all else being equal, their likelihood to act on a subsequent opportunity will inevitably decrease. However, because some people seem to get over negative outcomes quicker than others, an important determinant of the influence of missing a more attractive opportunity on behavior might be the way people cope with missing a more attractive opportunity. Action-oriented people typically get over negative events quickly, and focus on taking action to solve them, while state-oriented people find it typically difficult to overcome a negative event, and keep ruminating about it and how it affects their current state (see for overviews, Dieffendorff, Hall, Lord, & Strean, 2000; Kuhl & Beckmann, 1994). The expectation is that, compared to state-oriented people, action-oriented people are less influenced by missing a more attractive opportunity when initiating action on the current opportunity and they are less likely to show the inaction inertia effect.

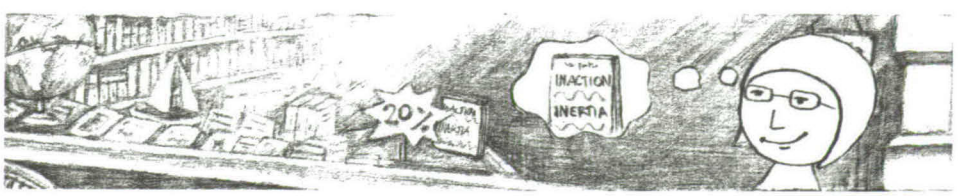
Note that the main characteristic that distinguishes action-oriented people from state-oriented people is the ability to disengage from unpleasant events. This does not mean that action-oriented people feel less negatively about unpleasant events. Put differently, action and state-oriented people will feel equally bad about missing an attractive opportunity, but only state-oriented people will let the previous

opportunity influence current decisions. Missed opportunities may influence current opportunities, because they are used as an anchor to evaluate the current opportunity (Arkes et al., 2002; Zeelenberg et al., 2006). As a result, people do not act on the current opportunity because it is devaluated under the influence of the missed opportunity. Thus, action-oriented people will probably show weaker inaction inertia effects than state-oriented people. Not because action-oriented people experience less regret after missing a more attractive prior opportunity, but because they are able to overcome this negative experience when evaluating subsequent events, and thus are less likely to devalue the current opportunity.

This potential moderating effect of action orientation on inaction inertia was investigated in two experiments. In Experiment 4.1 action orientation was experimentally induced. In Experiment 4.2 chronic individual differences in action orientation were assessed using Kuhl's Action Control Scale (e.g., Kuhl & Beckmann, 1994). the main interest in both experiments was how action versus state orientation would affect the likelihood to act on the current opportunity (i.e., in the inaction inertia effect). In addition to the effects on likelihood to act, Experiment 4.2 examined the process assumed to underlie the predictions more closely. That is, experienced regret for the missed opportunity and valuation of the subsequent opportunity were measured. This permitted the test whether indeed state and action-oriented people are as likely to experience regret over the missed opportunity, and whether the differences in likelihood to act are indeed best explained by the (de)valuation of the current opportunity.

EXPERIMENT 4.1

In this experiment participants were confronted with a standard inaction inertia scenario, in which they were deciding about booking a trip to Rome. They first read a part that they missed a very attractive opportunity. Next, either an action-oriented or a state-oriented mindset were experimentally induced. Because state orientation is typified by rumination about and hanging onto past failures (Dieffendorff et al.,



2000; Kuhl, 1981), participants in the state orientation conditions were asked to describe their thoughts and feelings right after they find out about missing an attractive opportunity. Since action orientation is typified by a focus on the present state and focusing on getting over past failures (Dieffendorff et al., 2000; Kuhl, 1981), participants in the action orientation conditions were asked to describe how they could improve the situation. This induction of action and state orientation follows the method of typical mindset priming (cf.Bargh & Chartrand, 2000) and builds on two previous studies that induced an action or a state-oriented mindset (Harmon-Jones & Harmon-Jones, 2002; Kuhl, 1981). Finally, participants read that they could still book a less attractive trip to Rome, and subsequently indicated their willingness to book this trip. the hypothesis was that action-oriented people would be less prone to the inaction inertia effect than state-oriented people.

Method

Participants and design

One hundred and forty-six students from Tilburg University completed the questionnaire (71 males, 75 females, $M_{age} = 20$). They were randomly assigned to one of the four conditions of a 2 (Difference in Attractiveness: Large vs. Small) × 2 (Action Orientation: Action vs. State) between-participants design.

Procedure and measures

Participants were seated in separate cubicles in the laboratory and received one of the scenarios of Zeelenberg et al. (2006). Participants were randomly assigned to either the small or the large difference in attractiveness condition. In the condition with a large [small] difference in attractiveness scenario read as follows:

> You adore Rome! Shortly you will have a whole week without lectures and you would very much like to visit Rome. A friend tells you that a local travel agency offers a completely organized three-day trip to Rome. You can book the trip this week for €100 [€165] instead of the usual €199. This includes traveling with the High Speed Train and two nights with breakfast at a four star hotel

in the center of Rome. He also tells you that you have to hurry before it is too late and the trip is sold out. During the week after you have spoken to your friend, you pass by the travel agency several times and think about booking the trip. However, you do not do so. When you finally want to book the trip it is sold out. You are too late.

Next, participants in the state conditions were instructed to describe the thoughts and feelings they would have in this situation. Participants in the action conditions were instructed to describe what they could do to improve this situation. After this, they turned the page and read the following: "Now your friend calls you again and tells you that, although you missed the previous opportunity, you can still book the trip this week for €170." After reading the scenario, participants indicated the likelihood that they would book the trip for €170 (0 = *very unlikely*, 10 = *very likely*).

As a check of the experimental manipulation of action orientation participants rated six of the 12 items of the Dutch translation of the 'Failure'-part of the Action Control Scale (ACS-90), a scale typically used to measure participants' degree of action orientation. This scale involves coping with the situations participants in inaction inertia studies typically face: making a decision that is already initiated (people are on their way to act on an attractive opportunity), which turns out less fortunate than expected (on arrival, the opportunity turns out less attractive than expected). This scale originally consists of 12 forced-choice items. Each item describes a stressful situation and participants indicate their preference for either an action or a state-oriented way of coping with it. All items are listed in the Appendix. When this scale is used to measure chronic action versus state orientation all items are used. In this experiment on induced orientation, 6 items of the scale were used as a manipulation check. Pretesting showed that these were the items that formed a reliable subscale (items 2, 5, 6, 9, 10, and 11, $\alpha = .63$). State-oriented answers were coded 0 and action-oriented answers were coded 1. All answers were summed to form an action orientation measure, with higher scores indicating a higher degree of action orientation. The scores

on the action orientation measure, which could range from 0 to 6, were centered on the mean, such that people who were scored 0 on the action orientation measure had a mean degree of action orientation. These questions were introduced as questions about participants' personality, because of the interest in who the participants were and how they normally act in certain situations. It was stressed that there were no right or wrong answers, and that the best answer was the answer that appealed to them the most.

Results and Discussion

Manipulation check

First, the effects on the action orientation manipulation check were analyzed using a 2 × 2 ANOVA. The ANOVA revealed only a main effect for action orientation, $F(1, 142) = 8.51$, $p < .01$, $\eta^2 = .06$. Participants in the action conditions ($M = 3.03$, $SD = 1.78$) scored higher on the action orientation scale than those in the state conditions ($M = 2.21$, $SD = 1.54$). This indicated that the manipulation of action vs. state orientation was successful.

Likelihood to act

The results on the action likelihood measure are shown in Figure 4.1. A 2 × 2 ANOVA revealed a main effect of difference in attractiveness, $F(1, 142) = 71.12$, $p < .001$, $\eta^2 = .33$, and a significant interaction effect, $F(1, 142) = 4.17$, $p < .05$, $\eta^2 = .03$. Simple Effect analyses revealed inaction inertia for both action orientation conditions: people were more likely to act when the difference between the missed and the current offer for a trip to Rome was large than when this difference was small in the action, $F(1, 142) = 22.28$, $p < .001$, $\eta^2 = .14$, and in the state conditions, $F(1, 142) = 50.65$, $p < .001$, $\eta^2 = .26$. Note, that as expected, the inaction inertia effect is almost twice as strong in the state as compared to the action conditions. Furthermore, likelihood to act in the large difference conditions was significantly higher in the action condition than in the state condition, $F(1, 142) = 6.35$, $p < .02$, $\eta^2 = .04$. This difference was not significant in the small difference conditions, $F(1, 142) = 0.11$, *ns.*, $\eta^2 = .00$. Thus, action-oriented people were less influenced by the €100 missed offer in their decision to act on the €170 offer than state-oriented

people. These results thus clearly support the reasoning that the more people use an action-oriented way of coping with stressful situations, the less they show inaction inertia.

EXPERIMENT 4.2

The results of Experiment 4.1 indicate that induced action orientation is an important moderator of the inaction inertia effect. Experiment 4.2 was conducted for two reasons. First, to validate the results of Experiment 4.1 with a measure of chronic differences in state versus action orientation. For this purpose, chronic orientation of the participants was assessed a week before running an experiment on the inaction inertia effect with the same standard inaction inertia decision scenario as in Experiment 4.1.

The second contribution of Experiment 4.2 was that the process underlying the differences in inaction inertia between action and state-oriented people was investigated. Remember that the main characteristic that distinguishes action-oriented people from state-oriented people is their ability to let go of unpleasant events when encountering new events. It is not that action-oriented people will feel less bad about the unpleasant event than state-oriented people, but rather their current and future encounters will be influenced less by what happened in the past. In the inaction inertia domain this would imply that action-oriented people may be as likely to regret missing the prior opportunity as state-oriented people. Action-oriented people may, however, be less prone to evaluate the current opportunity in light of the prior missed opportunity than state-oriented people.

The reasoning is thus, that action-oriented people do realize that they missed a more attractive opportunity and therefore, depending on the attractiveness of the missed opportunity, will feel the same degree of regret as state-oriented people. However, it is expected that the influence of the missed opportunity on the current decision to act will be less strong for action than for state-oriented people. Specifically, the hypotheses are that (a) action orientation moderates the inaction inertia effect, (b) that action orientation does not affect the regret felt over missing out on the prior opportunity, and (c) that this moderating effect

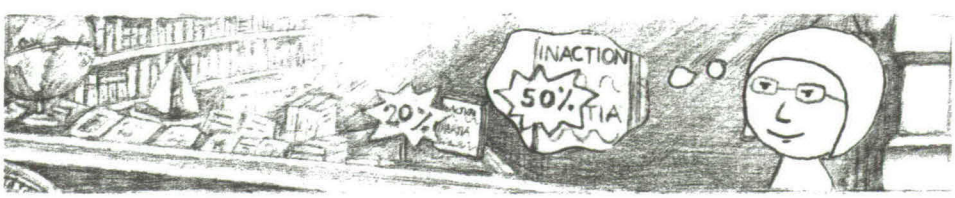
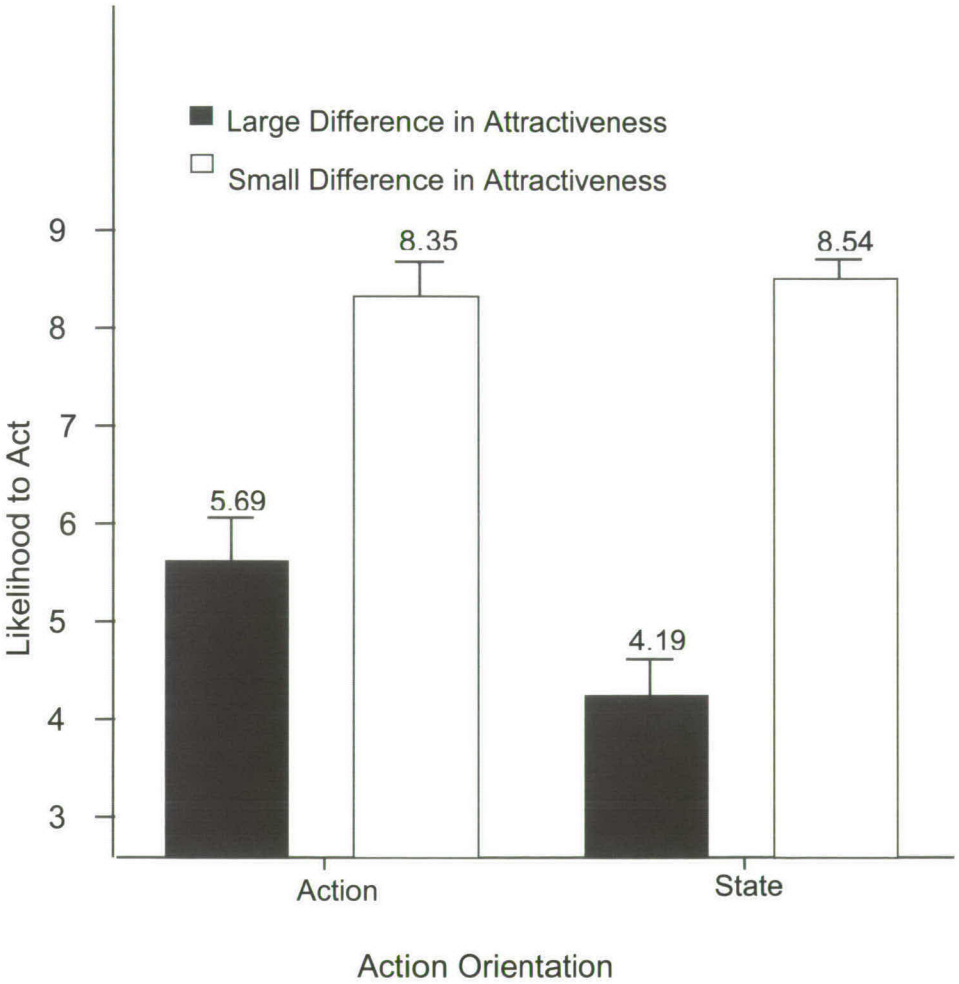


Figure 4.1. *Mean Likelihood to Act (Standard Error in Bars) as a Function of Difference in Attractiveness and State versus Action Orientation in Experiment 4.1.*



of action versus state orientation on inaction inertia is mediated by the differential valuation of the current opportunity.

Method

One hundred and nineteen students (20 males, 99 females, M_{age} = 19 years) at Tilburg University volunteered to participate in this study. Participants arrived in the laboratory and completed the 12 questions of the ACS-90 to measure their degree of action orientation. The items are listed in the Appendix. State-oriented answers were coded 0 and action-oriented answers were coded 1. All answers were summed to form an action orientation measure, with higher scores indicating a higher degree of action orientation (M = 5.74, SD = 2.80; α = .72). The scores on the action orientation measure, which could range from 0 to 12, were centered on the mean, such that people who were scored 0 on the action orientation measure had a mean degree of action orientation. Participants returned to the laboratory a week later for the seemingly unrelated inaction inertia study. They received the complete, uninterrupted scenario of Experiment 4.1, which describes missing the more attractive discount of either €100 (large difference) or €165 (small difference). After reading the scenario, participants indicated the likelihood that they would book the trip for €170 (0 = *very unlikely*, 10 = *very likely*). Additionally, they indicated experienced regret by asking how much they regretted missing the more attractive opportunity (0 = *not at all*, 10 = *very much*) and valuation by asking them to indicate the amount in Euros they would be willing to spend on the trip to Rome.

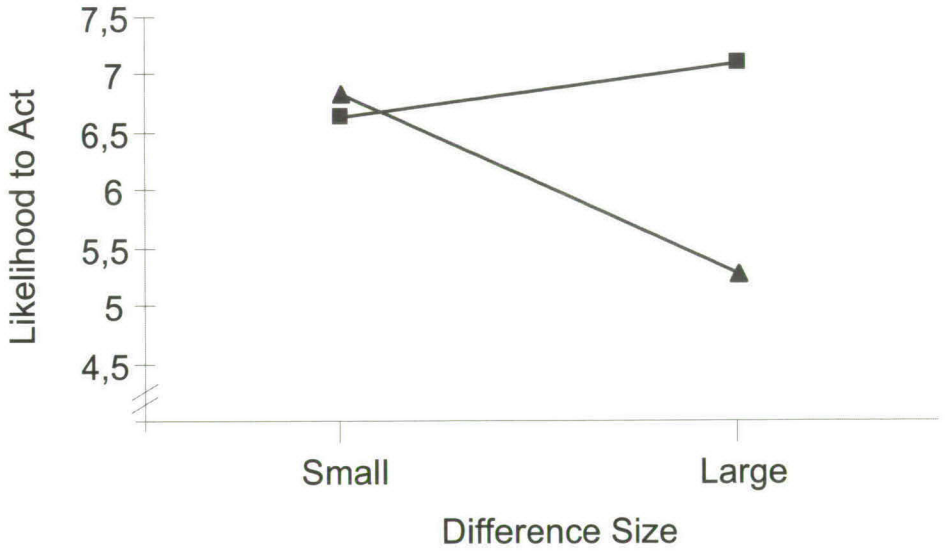
Results

Likelihood to act

The effects on likelihood to act of difference in attractiveness (contrast-coded as -1 for small difference and 1 for large difference), the action orientation score and their interaction were analyzed using a linear regression analysis (see Table 4.1, first column). The results revealed a significant interaction effect. The results of simple slope analyses (see Fig. 4.2) showed that the relation between difference in attractiveness and likelihood to act was significant when the score on the action orientation measure was low (1 SD below the mean; β = -.34, p < .01). Thus, state-oriented people showed a lower likelihood to act on the €170

offer when the difference between this offer and the missed opportunity was large than when this difference was small (indicating inaction inertia). There was no effect of difference in attractiveness when the score on the action orientation measure was high (1 SD above the mean; $\beta = .06$, *ns*). These results thus support the hypothesis that action-oriented people are less likely to show inaction inertia than state-oriented people.

Figure 4.2. . *Likelihood to Act as a function of Difference in Attractiveness for Participants with High vs. Low Scores on Action Orientation in Experiment 4.2.*



Experienced regret

The results on the experienced regret measure were analyzed using a linear regression analysis. The results revealed only a significant effect of difference in attractiveness ($\beta = .43$, $p < .001$), showing that people feel more regret when the difference in attractiveness is large than when the

difference is small. The fact that the action/state orientation did not affect experienced regret accords with the hypothesis that action and state-oriented people are as likely to experience regret over missed opportunities.

Valuation

The results on the valuation measures were analyzed using a linear regression analysis (see Table 4.1, second column). The results revealed a significant interaction effect. The results of simple slope analyses (see Fig. 4.3) showed that the negative relation between difference in attractiveness and likelihood to act was significant when the score on the action orientation measure was low (1 SD below the mean; $\beta = -.33$, $p = .01$). Thus, people with a state orientation were willing to pay less for the current offer when the difference between this offer and the missed opportunity was large than when this difference was small (indicating inaction inertia). There was no such effect of difference in attractiveness when the score on the action orientation measure was high (1 SD above the mean; $\beta = .19$, *ns*). There was a slight trend towards a positive effect of difference in attractiveness for action-oriented people, but this effect did not reach significance. The results thus support the hypothesis that action-oriented people are less likely to devaluate the current offer than state-oriented people.

Mediated moderation

The theory was that the effect of action orientation on inaction inertia was driven by the characteristic of action-oriented people to get over the missed opportunity more quickly than state-oriented people. As a result, valuation of the current opportunity would suffer less from the missed opportunity for action than for state-oriented people, leading to a higher likelihood to act on it. In other words, it was tested whether the moderating effect of action orientation on the relation between difference in attractiveness and action likelihood was mediated by the difference in valuation. The mediation analysis is displayed in Table 4.1. The data show that valuation mediates the moderating effect of action orientation on inaction inertia, because (a) the independent variable, in this case the interaction between action orientation and difference in attractiveness,

predicts the mediating variable, in this case valuation (see Table 4.1, column 2); (b) the mediating variable predicts the dependent variable, in this case likelihood to act; and (c) the effect of the independent variable on the dependent variable is reduced when the mediator is entered into the equation (see Table 4.1, column 1 vs. 3; Baron & Kenny, 1986). A Sobel test (1982) confirmed that the interaction effect of difference in attractiveness and action orientation on likelihood to act is significantly mediated by valuation, $z = 2.40$, $p < .05$.

Figure 3. *Valuation as a function of Difference in Attractiveness for Participants with High vs. Low Scores on Action Orientation in Experiment 4.2.*

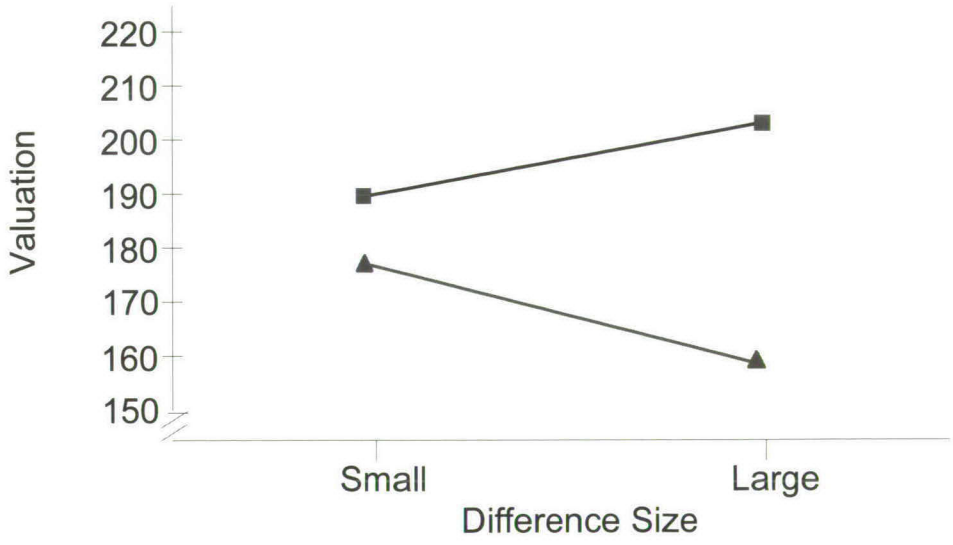


Table 4.1 *Mediation Analysis of Experiment 4.2*

	Likelihood to act	Valuation	Likelihood to act (with valuation)
Difference in attractiveness (DA)	-.14	-.07	-.12
Action orientation (AO)	.16	.10	.13
DA ×AO	.20*	.26**	.11
Valuation			.35**

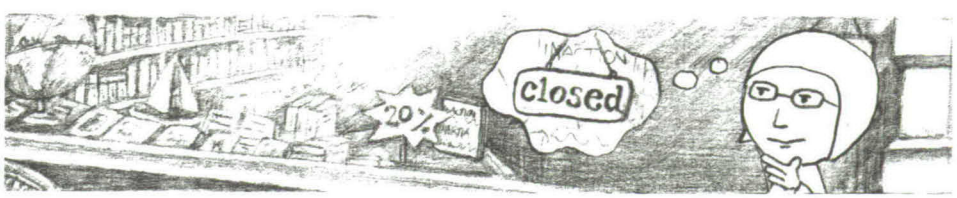
Note: standardized Beta coefficients are reported. * $p < .05$, ** $p < .01$

Discussion

These results clearly replicate the results of Experiment 4.1, and support the reasoning that the more people use an action-oriented way of coping with stressful situations, the less they show inaction inertia. Moreover, action and state-oriented people did not differ in the regret they experienced over missing out on the prior opportunity. Both feel more regret when they could have booked the trip for €100 than when they could have booked the trip for €165. The data on valuation, including the mediation analysis, suggest that the difference in the inaction inertia effect between action and state-oriented people is best explained by the degree to which they let the past opportunity influence their valuation of the current opportunity. This difference in valuation caused the differences in likelihood to book the trip, and thus in the inaction inertia effect.

GENERAL DISCUSSION

The goal of this chapter was to test the idea that the inaction inertia effect is weaker for action-oriented people than for state-oriented people. The idea was that action-oriented people get over missing a more attractive



opportunity more easily than state-oriented people, because of their typical style of coping with negative outcomes. As a result, the subsequent decision would be less influenced by missing the opportunity for action-oriented people than for state-oriented people, resulting in less devaluation of the current opportunity and therefore a higher likelihood to act on the current opportunity. Thus, it was predicted that the way of dealing with missed opportunities determines their influence on the decision to act on a subsequent opportunity. The results of two experiments clearly supported this prediction. Experiment 4.1 showed that inducing an action orientation reduced the inaction inertia effect. Experiment 4.2 replicated this result with an assessment of chronic action versus state orientation and found that inaction inertia decreases when people use an action-oriented way of coping. Moreover, as predicted the moderating effect of action orientation on inaction inertia is mediated by the valuation of the current opportunity.

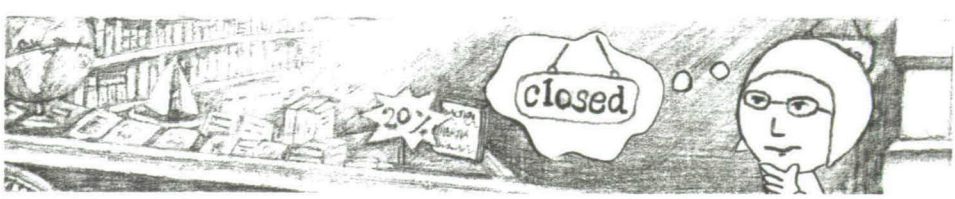
These results contribute significantly to the inaction inertia literature. The present research shows that the difference in action versus state orientation is an important determinant for the effect of missing a more attractive opportunity on subsequent decisions. This thus shows that there are individual differences in inaction inertia, but also, more importantly, it provides insight into the explanation of inaction inertia. When people are able to segregate the missed from the current opportunity they are less likely to use the missed opportunity to devaluate the current opportunity. This finding is related to earlier research showing attenuated inaction inertia when the missed opportunity was perceived to be segregated from the current opportunity, for example when the missed opportunity was seen as less comparable than in the usual inaction inertia studies (Van Putten et al., 2007). The current research contributes to this finding by showing that personal differences in the capability to segregate the opportunities have similar effects on inaction inertia, and that the decreased devaluation of the current opportunity in this case causes the inaction inertia effect to decrease.

An interesting additional result is that action versus state orientation was successfully manipulated in Experiment 4.1. Usually, action and state orientation are measured and the score is taken as an independent variable (as in Experiment 4.2). This is interesting for two reasons. First,

this method of inducing action and state orientation could be used in future research. Manipulation, instead of assignment to conditions based on scores on a scale measuring action vs. state orientation, leads to more efficient randomization of participants. Thus, confounding factors that may influence the results can be more successfully minimized and causal conclusions are more reliably drawn. Second, this might be helpful in certain situations where action or state orientation impairs goal-achievement, which, in an extreme example, is very relevant for people suffering from clinical depression (see for an overview, Kuhl & Beckmann, 1994).

On a more general note, this chapter shows that the way people cope with negative prior outcomes has an important influence on subsequent decisions relating to these outcomes. In this sense the difference in action and state orientation might be helpful in understanding other phenomena in decision making where past events interfere with current decisions. For instance, once people invest time, money or effort into a course of action, they are more likely to pursue that action than when no prior investments were made (sunk cost effect; Arkes & Blumer, 1985). Based on the current results one could expect that, since action-oriented people get over past investments more easily than state-oriented people, they therefore are less likely to show this sunk cost effect. If so, this would mean that people with an action orientation will be less influenced by their earlier investment and hence are less likely to pursue an endeavor. In other words, this leads to the provocative prediction that action-oriented people will be more inactive than state-oriented people.

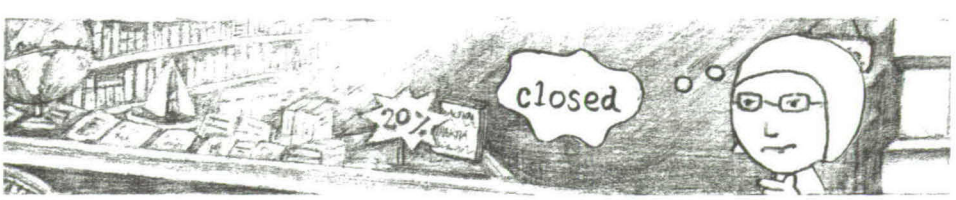
For now, we know that missing a more attractive opportunity does not directly mean a subsequent opportunity will be declined as well. People who are predisposed to get over it easily are lucky in this case, because they will be able to put the missed opportunity out of their minds relatively easily. The ones among us who do not have such a strong action orientation and who want to avoid inaction inertia effects can try an autonomous mindset induction of thinking of ways to improve the situation when they miss an attractive opportunity. This action-oriented way of dealing with past inactions might decrease their likelihood of inertia later on.



Chapter 5
Why?

TURNING SWEET DEALS SOUR: INACTION INERTIA AS A SOUR GRAPES PHENOMENON

Our days are filled with making decisions. Already in the morning we have to decide to get up right away, or to snooze for five more minutes. What to wear? What to drink with breakfast? When making all these kinds of decisions, many options are deferred. For example, this morning I did not wear a bear suit, I did not eat steak for breakfast, and I did not choose tomato juice on the side. In this case the options were deferred, because they are generally seen as silly choice options. However, many options are deferred that could have been perfectly good choices. For example, people choose not to go on vacation, or not to buy a product although they intended to do so, because there is no clear reason for preferring one option over the others, or because it is too difficult to choose from the available options (Dhar, 1997; Iyengar & Lepper, 2000; Schwartz, 2000; Shafir, Simonson, & Tversky, 1993). People also often choose not to act when they are confronted with attractive action opportunities, and hence they forego possibilities to be better off. For example, people sometimes turn down the opportunity to sign up for free air miles when they can get 4,500 bonus miles for free (Tykocinski et al., 1995). Why would such a sweet deal possibly be turned down? Tykocinski et al. (1995) coined the term inaction inertia for this surprising phenomenon. The idea is that sweet deals like this are turned down, simply because even sweeter deals were previously missed. The intriguing question concerning this phenomenon is, what causes the inaction inertia effect? This chapter reports three studies that support a new explanation of inaction inertia which holds that missing an initial



attractive opportunity is frustrating and results in downgrading subsequent opportunities that are still attractive, but less attractive than the earlier one that was missed.

Inaction inertia is the phenomenon that "forgoing an attractive action opportunity (initial inaction) decreases the likelihood that subsequent action will be taken in the same domain" (Tykocinski & Pittman, 1998, p. 607). For example, people are likely to buy a ski pass that is on sale for $90 instead of $100, but the likelihood to buy the same pass decreases substantially when earlier on they missed the opportunity to buy the ski pass for $40 (Tykocinski et al., 1995). The larger this difference in attractiveness between the initial and the current opportunity, the stronger the inaction inertia effect.

When there is a clear difference in attractiveness between the missed and current opportunity, the current opportunity is experienced as a loss, and it does not matter if one could have prevented missing the initial opportunity or not (Tykocinski et al., 1995, Exp. 4-6; Zeelenberg et al., 2006, Exp. 1). It is clearly frustrating, being confronted with an opportunity that compares badly with the recently missed opportunity, even though it may still be an objectively good opportunity. What can people do to cope with such frustration? Elster (1983) borrowed La Fontaine's famous fable about the fox and the grapes to explain how constraints such as unavailability may shape our preferences. In this fable a fox is trying to pick appetitive grapes. But, no matter how hard he tries and how high he jumps, he cannot reach them. Finally, the fox walks away, shrugging, saying to himself that it were sour grapes anyway. Thus, the fox is constrained by his inability to pick the grapes and changes his preference for the grapes by convincing himself that they were sour anyway. By making the grapes less appetitive, not being able to eat them does not hurt that much.

Zeelenberg et al. (2006, p. 103), suggested that a similar mechanism could be at work in inaction inertia. They argued that "decision makers may comfort themselves with the idea that the missed opportunity (and therefore the current opportunity, if it resembles the missed opportunity) was not that great after all". To cope with the bitter feeling of missing a better deal, people might turn the deal sour by devaluating or trivializing it, thereby making it less interesting to them. Previous research has

provided some preliminary findings that accord with this view. Arkes, Kung and Hutzel (2002) showed that people value the offer less when the difference between the missed and the current opportunity is large than when it is small. When a $40 offer on a normally $100 ski pass is missed people think the ski pass is worth only $84.05, whereas if a $80 offer was missed people think it is worth $96.97. Thus, the value placed on the opportunity is indeed lower, the more attractive the missed opportunity was. The theory proposed here is that this devaluation is a way to comfort oneself of the bitter feeling of missing a better deal. This so called "sour grapes" explanation shares important aspects with retroactive pessimism, which shows that people alter their perception of the probability of reaching an alternative, more positive outcome, to reduce their disappointment with the actual outcome (Tykocinski, 2001; Tykocinski, Pick, & Kedmi, 2002; Tykocinski & Steinberg, 2005). For example, after Barak won the 1999 Israeli elections, citizens who voted for Netanyahu were less satisfied with the outcome of the elections. However, the Netanyahu voters reported a higher likelihood that Barak would win after the elections than before (Tykocinski, 2001). Thus, there are two ways to reduce negative affect when people cannot get what they want. One is to lower the value, or importance of the outcome (sour grapes), the other is to lower the probability that the outcome could have been obtained (retroactive pessimism).

The sour grapes explanation shares important aspects with alternative explanations of inaction inertia, but, we argue, it goes beyond these other explanations in the sense that it makes unique predictions and is more parsimonious. One important other explanation, in terms of devaluation (Arkes et al., 2002), as illustrated above, concerns the worth of the opportunity. According to the devaluation explanation, the missed opportunity is used as an anchor to estimate the worth of the option under consideration. People are less likely to act on the current opportunity, because they do not believe it is worth the money. Thus, the basis of sour grapes and devaluation is the same, such that both see inaction inertia as an effect stemming from downgrading the current opportunity. However, the dissimilarities with the sour grapes explanation are that (a) the sour grapes explanation considers trivialization next to devaluation as a way to comfort oneself; and that (b) according to the devaluation explanation

this downgrading is not necessarily a way of coping with negative affect. Therefore, devaluation was not explicitly related to negative affect. The devaluation explanation as such cannot explain findings that show the importance of negative affect in the inaction inertia effect. For example, inaction inertia decreases when people expect continued confrontation with the more attractive, but unavailable opportunity. Also, it decreases under the effect of time pressure, when the option under consideration is required within two days (Tykocinski & Pittman, 1998). It is difficult to explain these findings by a mere devaluation in price. Confrontation should leave the inaction inertia effect unchanged, or should strengthen it because of the continued reminder of the more attractive anchor. Likewise, the fact that the option is needed should have nothing to do with the influence of an anchor. Thus, although devaluation can explain, and clearly seems to play an important role in the inaction inertia effect, this explanation as such cannot account for these moderating effects.

In the sour grapes explanation, the downgrading of the current opportunity also plays a central role. However, this explanation also gives a reason *why* devaluation occurs. It stems from the urge to reduce the frustrating bitterness of the difference in attractiveness with the missed opportunity. Hence, it can account for the findings concerning the importance of negative affect, such as caused by continued confrontation with the unavailable opportunity. Because one is then constantly reminded of the difference of attractiveness with the initial opportunity, souring the opportunity is ineffective in reducing the bitterness caused by it. The same holds for time pressure. Typically, people downgrade the importance or attractiveness of the option. Realizing that the clothes are necessary will make it harder to downgrade the clothes by making them less interesting. Hence, downgrading is no longer a means to undo the negative feelings and the current opportunity stays attractive.

Another explanation of inaction inertia is in terms of decision regret. This explanation shares with the sour grapes explanation that it revolves around reducing or regulating the experience of negative affect. The explanation of inaction inertia in terms of regret defines inaction inertia as a way to reduce regret for missing the more attractive opportunity. There are two regret explanations. The first regret explanation is that people stay inactive on the current opportunity to escape the regret they

feel for missing the first opportunity (Arkes et al., 2002). Thus, the regret people feel prevents them from acting on the current opportunity. The second is that people stay inactive to avoid feeling regret (Tykocinski & Pittman, 1998, 2001). Instead of experienced regret withholding them to take action, this theory says that people anticipate that they will feel regret if they would take the current opportunity, because they will be reminded of the missed opportunity. To avoid this anticipated regret, they do not act on the current opportunity. Both theories thus revolve around reducing regret caused by the missed opportunity, but one says it causes inaction by its immobilizing effect after missing it, and the other says it causes inaction because the current opportunity will constantly remind one the regret.

Although initial results were consistent with this explanation, more recent studies documented cases in which regret could not account for the inaction inertia effect (Zeelenberg et al., 2006). Thinking about the current decision, for example, decreased the inaction inertia effect, but also increased the regret people felt over missing the initial opportunity. Moreover, responsibility for missing the initial opportunity had no effect on inaction inertia, but at the same time increased regret. Importantly, according to the sour grapes explanation not regret is regulated, but a more general frustrating bitterness that is not necessarily related to how or why the negative outcome materialized. In other words, this negative affect can occur without feelings of responsibility. Regret, by contrast, is clearly linked to bad outcomes due to one's own mistakes or bad choices (Zeelenberg, Van Dijk, & Manstead, 1998). Therefore, the sour grapes explanation, unlike the regret explanation, can account for the important finding that responsibility has no effect on inaction inertia. Finally, it is difficult to use the regret explanation to account for the devaluation effects. According to the avoidance of regret explanation, the regret for missing the initial opportunity is so painful that people avoid the current opportunity to put an end to it. This indicates that the current opportunity is highly valuated by people, because it can trigger this painful experience again. Note that this is the opposite prediction of what devaluation measures showed, namely that the current opportunity is seen as less valuable the larger the difference in attractiveness with the missed opportunity.

Sour grapes might thus be a good explanation for the inaction inertia effect. At least post hoc, it can account for findings that cannot be explained in terms of regret or simple devaluation. Therefore the present research aims to put this explanation to the test and investigate how inaction inertia is the result of self-regulatory processes. Three experiments were conducted in which factors were manipulated that would either stimulate the sour grapes mechanism or prevent it from being useful.

The sour grapes explanation holds that to undo the bitter feeling associated with missing the more attractive opportunity, people adapt their preferences by downgrading the current opportunity. As a result, people see the current opportunity as unimportant and therefore do not act on it. Two predictions follow from this: (1) when there is frustration about the difference in attractiveness of the current opportunity with the missed opportunity, but downgrading is no longer a means to undo it, inaction inertia will decrease, (2) when frustration about the difference in attractiveness is low, there is no need to downgrade the opportunity and inaction inertia will not occur.

Experiments 5.1 and 5.2 tested Prediction 1, Experiment 5.3 tested Prediction 2. In all experiments likelihood to act on the current opportunity was assessed (the crucial dependent variable in inaction inertia studies). Frustration was measured to grasp the annoying feeling elicited by the difference in attractiveness between the missed and the current opportunity. Just like regret, frustration stems from a discrepancy between a wanted and a real outcome, but unlike regret, frustration does not necessarily stem from feeling responsible for this discrepancy (Roseman, Wiest, & Swartz, 1994). Therefore, next to likelihood to act, regret and frustration were measured in Experiment 5.1. In Experiment 5.2 and 5.3 the importance of the opportunity to measure the degree of downgrading was additionally asked.

EXPERIMENT 5.1

Experiment 5.1 was designed to test the first prediction, that inaction inertia decreases when downgrading the opportunity becomes more

difficult. The reasoning behind this experiment is that when people are confronted with the current opportunity, the frustration stemming from the difference in attractiveness with the missed opportunity leads them to downgrade it, turn it sour. However, when people have thought about the positive aspects of the opportunity before, downgrading is more difficult to do, since it would be inconsistent with their earlier thoughts, and inaction inertia should be weakened.

Participants received a typical inaction inertia decision scenario in which an opportunity to book a vacation was offered after a more attractive opportunity to book a vacation was missed with either a large or a small difference in attractiveness. One group participants (control condition) only read the scenario. The participants in the other two experimental conditions were asked to generate either negative aspects, or positive aspects of the more attractive missed opportunity. Since the expectation is that participants spontaneously engage in downgrading when confronted with a missed opportunity, generating negative aspects should produce similar effects as in the control condition. On the other hand, generating positive aspects should weaken inaction inertia relative to the control group, because it goes against the operation of the sour grapes mechanism and makes it harder to downgrade the attractive opportunity. Thus, the counterintuitive prediction is that letting the participants think about the positive aspects decreases inaction inertia.

Method

Participants and design

One hundred eighty-six students from Tilburg University completed the questionnaire (108 males, 76 females, 2 failed to indicate gender, M_{age} = 21). They were randomly assigned to one of the six conditions of a 2 (Difference in Attractiveness: Large vs. Small) × 3 (Generated Aspects: Control vs. Positive vs. Negative) between-participants design.

Procedure and measures

Participants were approached at several places at the university campus. They were randomly assigned to either the small or the large difference in attractiveness condition. The scenario was closely modeled after the

Zeelenberg et al. scenario (2006, p. 94) Experiment 3. The scenario in the large [small] difference condition read as follows (translated form the original Dutch):

> You adore Rome! Shortly you will have a whole week without lectures and you would very much like to visit Rome. A friend tells you that a local travel agency offers a completely organized three-day trip to Rome. You can book the trip this week for €100 [€165] instead of the usual €199. This includes traveling with the High Speed Train and two nights with breakfast at a four star hotel in the center of Rome. The friend also tells you that you have to hurry before it is too late and the trip is sold out. Although you intended to go there, you didn't get to the travel agency in time, the trip it is sold out. You are too late.

After reading this scenario the participants in the positive aspects condition read the following question: "After missing this trip to Rome you consider how pleasant it would be to go to Rome in the middle of the summer. Name two aspects that are attractive to such a trip". The participants in the negative aspects condition were told that they realized, after missing the trip, that going to Rome in the middle of the summer actually was quite unpleasant. They were asked to name two negative aspects of such a trip. The participants in the no aspects condition were not asked to do anything after reading the scenario. Then, they indicated their feelings of frustration and regret after missing the attractive opportunity (0 = *not at all*, 10 = *very much*).

Next, they all read: "Your friend calls you again and tells you that, although you missed the previous opportunity, you can still book the trip this week for €170." Participants indicated the likelihood to act on this opportunity (0 = *very unlikely*, 10 = *very likely*).

Results

The results on the dependent measures are shown in Table 5.1, and all were analyzed using 2 × 3 ANOVA's.

Table 5.1. *Ratings on the Dependent variables as a Function of Large vs. Small difference in Attractiveness and Generated Aspects in Experiment 5.1*

	Generated aspects					
	Control		Positive		Negative	
Dependent variables:	*M*	*SD*	*M*	*SD*	*M*	*SD*
Likelihood to Act						
Small difference	8.50	(1.50)	7.60	(1.75)	7.84	(1.55)
Large difference	5.52	(2.29)	6.52	(1.65)	5.63	(2.21)
Frustration						
Small difference	2.91	(2.21)	5.83	(2.65)	4.94	(2.08)
Large difference	5.87	(2.66)	6.77	(1.96)	6.53	(2.36)
Regret						
Small difference	2.88	(1.96)	5.17	(2.56)	5.44	(2.31)
Large difference	6.13	(1.95)	6.65	(1.96)	6.83	(2.34)

Note. Ratings were made on a 11-point scales, with endpoints labeled *not likely* (0) and *very likely* (10), *not at all* (0) and *very much* (10)

Likelihood to act

The results revealed a significant main effect of difference in attractiveness, $F\,(1, 180) = 59.67$, $p < .001$, $\eta^2 = .25$, and a significant interaction effect, $F\,(2, 180) = 4.14$, $p < .05$, $\eta^2 = .04$. Simple Effect analyses revealed inaction inertia in all conditions, but the effect was considerably smaller in the positive aspects condition, $F\,(1, 180) = 5.25$, $p < .05$, $\eta^2 = .03$, than in the negative aspects, $F\,(1, 180) = 22.18$, $p <$

.001, $\eta^2 = .11$, and the control condition, $F(1, 180) = 41.11$, $p < .001$, $\eta^2 = .19$. Thus, inaction inertia effect is weaker when the use of the sour grapes mechanism is interfered by generating positive aspects about the opportunity than when it is encouraged by generating negative aspects, or when the use of sour grapes is not influenced.

Frustration

The results revealed a significant main effect of difference in attractiveness, $F(1, 180) = 28.79$, $p < .001$, $\eta^2 = .14$, a significant main effect of generated aspects, $F(2, 180) = 11.09$, $p < .001$, $\eta^2 = .11$, and a significant interaction effect, $F(2, 180) = 3.06$, $p = .05$, $\eta^2 = .03$. Simple Effect analyses revealed an effect of difference in attractiveness in the control condition, $F(1, 180) = 25.50$, $p < .001$, $\eta^2 = .12$, and in the negative aspects condition, $F(1, 180) = 7.26$, $p < .01$, $\eta^2 = .04$. No significant effect was observed in the positive aspects condition, $F(1, 180) = 2.49$, *ns*. Naming positive aspects thus reduced the effect of the attractiveness of the missed opportunity on frustration, such that people were all more frustrated than in the control, or in the negative aspects conditions.

Regret

The results revealed a significant main effect of difference in attractiveness, $F(1, 180) = 40.22$, $p < .001$, $\eta^2 = .18$, a significant main effect of generated aspects, $F(2, 180) = 10.22$, $p < .001$, $\eta^2 = .10$, and a significant interaction effect, $F(2, 180) = 3.60$, $p < .05$, $\eta^2 = .04$. Simple Effect analyses revealed a stronger effect of difference in attractiveness in the control condition, $F(1, 180) = 34.86$, $p < .001$, $\eta^2 = .16$, than in the negative aspects condition, $F(1, 180) = 6.31$, $p = .01$, $\eta^2 = .03$, and the positive aspects condition, $F(1, 180) = 6.79$, $p = .01$, $\eta^2 = .04$. Regret thus differed between the conditions, because the effect of difference in attractiveness was stronger in the control condition than in the conditions where either positive or negative aspects.

Discussion

The results show that inaction inertia decreases when participants think about the positive aspects of the initial opportunity. Highlighting the attractiveness of the initial opportunity thus decreased inaction inertia. This is in line with the sour grapes mechanism, which predicts that when downgrading the considered opportunity is discouraged by thinking of positive aspects instead, inaction inertia is decreased. Moreover, frustration was high irrespective of difference in attractiveness between the current and the initial opportunity when participants generated positive aspects. Thus, the typical inaction inertia condition mostly resembled the condition in which the sour grapes mechanism is encouraged. This supports the idea that the sour grapes mechanism plays a role in the causation of the inaction inertia effect. The regret ratings shows that regret followed a different pattern than frustration or action likelihood. Interestingly, regret increased in both conditions where participants thought about aspects of the considered opportunity (cf., Zeelenberg et al., 2006), but frustration and likelihood to act were determined by the contents of their thoughts. All in all, these results are in favor of an explanation of inaction inertia by the sour grapes mechanism.

EXPERIMENT 5.2

Experiment 5.1 showed that inaction inertia decreases when people look at a typical inaction inertia situation in a way that counteracts the sour grapes mechanism. This first experiment therefore supported the sour grapes explanation of inaction inertia. To test this explanation further Experiment 5.2 was conducted. The sour grapes mechanism predicts that people downgrade the opportunity to reduce the frustration elicited by the more attractive missed opportunity. From this prediction follows the hypothesis that when there is information available that impairs downgrading the opportunity under consideration, the option should stay interesting and inaction inertia will decrease. Because downgrading is impaired, frustration will stay high. The use of the sour grapes

mechanism was discouraged by emphasizing the attractiveness of the option under consideration. If the prediction following from the sour grapes mechanism holds, this induction should decrease the inaction inertia effect. To measure the sour grapes process of downgrading the current opportunity participants were asked to rate how important the opportunity was to them.

Method

Participants and design

One hundred and sixty students from Tilburg University and Erasmus University completed the questionnaire (76 males, 82 females, 2 failed to indicate their gender, $M_{age} = 22$). They were randomly assigned to one of the four conditions of a 2 (Difference in Attractiveness: Large vs. Small) × 2 (Emphasis: No vs. Yes) between-participants design.

Procedure and measures

Participants were approached at several places at the university campus. Participants were randomly assigned to either the small or the large difference in attractiveness condition. The scenario was closely modeled after the Van Putten et al. coffee machine scenario (2007, Experiment 2). The scenario in the large [small] difference/ no emphasis condition read as follows (translated form the original Dutch):

> You consider buying a new coffee machine. On the university campus this week you overheard a conversation, in which somebody told he had bought the same coffee machine you would like with a 50% [20%] discount and that this discount lasts until next week. Although you intended to go there, you didn't get to the store in time and the discount expired. A few days later you walk by the store and see the same coffee machine with a 10% discount.

The emphasis of the attractiveness was induced by adding a conversation with a friend after missing the initial opportunity:

> When you tell a friend that you missed the opportunity to buy a coffee machine with a discount, he tells you that the coffee machine would have been a great purchase. With that particular coffee machine you can rapidly make very tasty coffee.

Next, all participants indicated the likelihood of buying the coffee machine with 10% discount (0 = *very unlikely*, 10 = *very likely*), the importance of buying the coffee machine, the frustration and regret of missing the coffee machine with a 50% discount(0 = *not at all*, 10 = *very much*).

Results

The results on the dependent measures are shown in Table 5.2, and all are analyzed using 2 × 2 ANOVA's.

Likelihood to act
The results revealed a significant main effect of difference in attractiveness, $F(1, 156) = 10.82$, $p < .001$, $\eta^2 = .07$, a significant main effect of emphasis, $F(1, 156) = 21.20$, $p < .001$, $\eta^2 = .12$ and a significant interaction effect, $F(1, 156) = 4.71$, $p < .05$, $\eta^2 = .03$. Simple Effect analyses revealed inaction inertia only in the no emphasis conditions, $F(1, 156) = 14.90$, $p < .001$, $\eta^2 = .09$, not in the emphasis conditions, $F(1, 156) = 0.63$, *ns*. Thus, when the attractiveness of the coffee machine was emphasized, people were less influenced by the attractiveness of the missed opportunity and were therefore more likely to take the opportunity to buy the coffee machine with 10% discount than when the attractiveness of the coffee machine was not emphasized.

Importance
The results revealed a significant main effect of difference in attractiveness, $F(1, 156) = 11.98$, $p = .001$, $\eta^2 = .03$, a significant main effect of emphasis, $F(1, 156) = 4.82$, $p < .05$, $\eta^2 = .07$ and a significant interaction effect, $F(1, 156) = 4.19$, $p < .05$, $\eta^2 = .03$. Simple Effect analyses revealed only an effect of difference in attractiveness in the no emphasis conditions, $F(1, 156) = 9.00$, $p < .01$, $\eta^2 = .06$, not in the

emphasis conditions, $F(1, 156) = 0.01$, *ns*. Thus, people trivialized the opportunity to buy the coffee machine the more attractive the missed opportunity was, but only in the control conditions, not when the attractiveness of the missed opportunity was emphasized.

Table 5.2. *Ratings on the Dependent variables as a Function of Difference in Attractiveness and Emphasis in Experiment 5.2*

	Emphasis			
	No		Yes	
Dependent variables:	*M*	*SD*	*M*	*SD*
Likelihood to Act				
Small difference	6.50	(2.43)	6.43	(2.14)
Large difference	4.43	(2.93)	7.00	(2.01)
Importance				
Small difference	4.30	(2.08)	4.78	(2.24)
Large difference	2.88	(2.05)	4.73	(2.12)
Frustration				
Small difference	5.10	(2.08)	6.43	(2.19)
Large difference	6.68	(2.67)	7.13	(2.48)
Regret				
Small difference	5.05	(2.47)	5.95	(2.41)
Large difference	6.78	(2.56)	6.90	(2.65)

Note. Ratings were made on 11-point scales, with endpoints labeled *not likely* (0) and *very likely* (10), and *not at all* (0) and *very much* (10).

Frustration

The results revealed a significant main effect of difference in attractiveness, $F(1, 156) = 8.23$, $p < .01$, $\eta^2 = .05$, and a significant main

effect of emphasis, F (1, 156) = 5.01, $p < .05$, $\eta^2 = .03$. The interaction effect was not significant. However, simple effect analyses revealed that frustration was higher in the large difference condition than in the small difference condition, but only in the no emphasis conditions, F (1, 156) = 7.89, $p < .01$, $\eta^2 = .05$, not in the emphasis conditions, F (1, 156) = 1.56, *ns*. Thus, people were more frustrated the more attractive the missed opportunity was, but this effect of difference in attractiveness was not significant when the attractiveness of the missed opportunity was emphasized.

Regret

The results only revealed a significant main effect of difference in attractiveness, F (1, 156) = 11.25, $p = .001$, $\eta^2 = .07$. People felt more regret when they missed the opportunity to buy the coffee machine with a 50% discount than when the missed the 20% discount. The other effects were not significant.

Mediated moderation

The theory was that the effect of emphasis on inaction inertia was driven by the lower ability to downgrade the option under consideration in the emphasis condition compared to the no emphasis condition. As a result, the rated importance of the current opportunity would suffer less from the missed opportunity when the attractiveness was emphasized than in the no emphasis condition, leading to a higher likelihood to act on it. In other words, it was tested whether the moderating effect of emphasis on the relation between difference in attractiveness and action likelihood was mediated by the difference in importance. The mediation analysis is displayed in Table 5.3. The data show that importance mediates the moderating effect of emphasis on inaction inertia, because (a) the independent variable, in this case the interaction between emphasis and difference in attractiveness, predicted the mediating variable, in this case importance (see Table 5.3, column 2); (b) the mediating variable predicted the dependent variable, in this case likelihood to act; and (c) the effect of the independent variable on the dependent variable was reduced when the mediator was entered into the equation (see Table 5.3, column 1 vs. 3; Baron & Kenny, 1986). A Sobel test (1982) confirmed that the

interaction effect of difference in attractiveness and emphasis on likelihood to act is significantly mediated by importance, $z = 1.95$, $p = .05$.

Table 5.3. *Mediation Analysis of Experiment 5.2*

	Likelihood to act	Importance	Likelihood to act (with Importance)
Difference in attractiveness (DA)	-.39**	-.32**	-.28**
Emphasis (E)	.18	.11	.14
DA ×E	.27*	.27*	.18
Importance			.35**

Note: standardized Beta coefficients are reported. * $p < .05$, ** $p < .01$

Discussion

The results of Experiment 5.2 extended the findings of Experiment 5.1 in three important ways. First, they again support the idea that sour grapes is a causal mechanism in the inaction inertia effect. By emphasizing the attractiveness of the option under consideration, it is more difficult to downgrade it and inaction inertia disappears. Second, the measurement of importance show that the opportunity is downgraded more, the larger the difference in attractiveness in the typical inaction inertia situation, but not when the attractiveness of the opportunity is emphasized. Thus, in the typical inaction inertia situation people think the opportunity is less important when they missed a more attractive opportunity. They do not act on the current opportunity, because they are less interested in it. This again leads to the striking finding that enhancing the attractiveness of the missed opportunity decreases the inaction inertia effect. This makes sense, however, from a sour grapes perspective, because downgrading

under these circumstances is made less plausible. Third, the results again support that the manipulations of the sour grapes mechanism affect frustration differently than regret. In fact in this experiment frustration was higher when the difference in attractiveness between the missed and the current opportunity was large than when it was small, but only in the control condition. Regret, on the other hand, was also influenced by difference in attractiveness when the attractiveness of the opportunity was emphasized. Experiment 5.2 thus provides strong evidence in favor of the sour grapes explanation of inaction inertia.

EXPERIMENT 5.3

The first two experiments show that manipulations that discourage (naming positive aspects of the missed opportunity in Exp. 1, emphasizing the attractiveness of the missed opportunity in Exp. 2) the use of the sour grapes mechanism decrease inaction inertia. In both experiments downgrading had become more difficult when the sour grapes mechanism was more difficult to use, resulting in higher frustration than in the typical inaction inertia condition. These results supported the first prediction: when there is frustration about the difference in attractiveness of the current opportunity with the missed opportunity, but downgrading is no longer a means to undo it, inaction inertia will decrease. In Experiment 5.3 the second prediction was tested: when frustration about the difference in attractiveness is low, there is no need to downgrade the opportunity and inaction inertia will not occur. Note that the sour grapes explanation predicts that inaction inertia is caused by the downgrading of the opportunity to reduce the frustration of missing the initial opportunity. Frustration is thus important, because it triggers this process of downgrading, but it is not the crucial motivation for action.

Experiment 5.3 was designed to further test the sour grapes explanation. Participants received a typical inaction inertia situation, where they are deciding to act on an opportunity to take an internship in the U.S, but missed a more attractive opportunity for an internship before. In one half of the conditions the difference in attractiveness with

the current internship is small, in the other half it is large. All participants were then again divided in two groups. One group only learned about the missed and the current opportunity, the other group learned that the a priori chance of missing the initial opportunity was 90%. The first hypothesis was that this high expectation of missing the more attractive opportunity would decrease the frustration over missing it. The second hypothesis was that this increased expectation of missing the more attractive internship would render the use of the sour grapes mechanism unnecessary, because there is no frustration to reduce, and thus that there would be less downgrading. Because of the decreased downgrading there would be a higher likelihood to act on the current offer of an internship.

Method

Participants and design

One hundred and forty-three students from Tilburg University and The Hague University completed the questionnaire (60 males, 79 females, 4 failed to indicate their gender, $M_{age} = 22$). They were randomly assigned to one of the four conditions of a 2 (Difference in Attractiveness: Large vs. Small) × 2 (Chance of missing: Control vs. 90%) between-participants design.

Procedure and measures

Participants were approached at several places at the university campus. Participants were randomly assigned to either the small or the large difference in attractiveness condition. In the condition with a large [small] difference in attractiveness scenario read as follows:

> In the final year of your study it is possible to be trained on the job. You like the idea of gathering practical knowledge and at the same time going to a foreign country. At the beginning of the year you considered the list of foreign student internship programs and one particular internship attracted your attention. It is an internship within a large and impressive company with a good reputation [It is an internship within a medium sized company, which has an acceptable and even somewhat above

> average reputation]. Furthermore, this student internship is in the United States, a country where you always wanted to go. You decide to apply for this internship. A week after the application you are called with the message that you are not hired for the student internship, another applicant was more suitable for thejob. They offer you another student internship within a small and non-familiar company in the United States.

In the 90% chance of missing condition, the probability of missing the initial opportunity was manipulated by adding the following sentence after "You decide to apply for this internship":

> In the first meeting you hear that the probability that you can join the program is not that high. With your CV and grades the chance that you will be rejected is 90%.

Next, all participants indicated the likelihood of joining the current internship (0 = *very unlikely*, 10 = *very likely*), the importance of joining the internship, the frustration and regret of missing the first internship (0 = *not at all*, 10 = *very much*).

Results

The results on the dependent measures are shown in Table 5.4, and are all analyzed using 2 × 2 ANOVA's.

Likelihood to act

The results revealed a marginally significant main effect of difference in attractiveness, $F\,(1, 139) = 3.37$, $p = .07$, $\eta^2 = .02$, a significant main effect of chance of missing, $F\,(1, 139) = 4.68$, $p < .05$, $\eta^2 = .03$ and a significant interaction effect, $F\,(1, 139) = 3.86$, $p = .05$, $\eta^2 = .02$. Simple Effect analyses revealed inaction inertia only in the control condition, $F\,(1, 139) = 7.06$, $p < .01$, $\eta^2 = .05$, not in the 90% chance of missing conditions, $F\,(1, 139) = 0.01$, *ns*. Thus, when the chance of missing the initial opportunity for an internship was 90% people were more likely to

Table 5.4. *Ratings on the Dependent variables as a Function of Difference in Attractiveness and Chance in Experiment 5.3*

	90% chance of missing			
	No		Yes	
Dependent variables:	*M*	*SD*	*M*	*SD*
Likelihood to Act				
Small difference	6.24	(2.19)	6.31	(1.84)
Large difference	4.89	(2.36)	6.35	(2.05)
Importance				
Small difference	5.94	(1.94)	5.56	(2.04)
Large difference	4.94	(2.34)	5.95	(1.97)
Frustration				
Small difference	7.26	(1.95)	5.58	(2.61)
Large difference	6.08	(2.13)	6.14	(2.14)
Regret				
Small difference	6.29	(2.83)	6.44	(1.86)
Large difference	5.94	(2.19)	5.94	(2.04)

Note. Ratings were made on 11-point scales, with endpoints labeled *not likely* (0) and *very likely* (10), and *not at all* (0) and *very much* (10).

take the opportunity to go on internship with the less attractive company, than when no chances of rejection were mentioned.

Importance

The results revealed a significant interaction effect, F (1, 139) = 4.02, p < .05, η^2 = .03. Simple Effect analyses revealed that obtaining the current internship was more important when the difference in attractiveness was small than when it was large only in the control conditions, F (1, 139) = 4.10, p < .05, η^2 = .03, not in the 90% chance of missing conditions, F (1,

139) = 0.64, *ns.* Thus, people trivialized the current opportunity in the control conditions, not when the chance of missing the initial internship was 90%.

Frustration

The results revealed a significant main effect of chance of missing, F (1, 139) = 4.80, $p < .05$, $\eta^2 = .03$, and a significant interaction effect, F (1, 139) = 5.43, $p < .05$, $\eta^2 = .04$. Simple Effect analyses revealed a difference in frustration only in the control conditions, F (1, 139) = 4.96, $p < .05$, $\eta^2 = .03$, not in the 90% chance of missing conditions, F (1, 139) = 1.13, *ns.* Thus, people felt more frustrated the more attractive the missed internship was, but only when no chances of missing were mentioned. When there was a 90% chance of missing the initial internship, frustration did not depend on difference in attractiveness

Regret

The results revealed no effect of difference in attractiveness or chance on the regret ratings.

Mediated moderation

The theory was that the effect of the chance of missing the initial opportunity on inaction inertia was driven by the lower necessity to downgrade the option under consideration in the 90% chance of missing condition compared to the control condition. As a result, the rated importance of the current opportunity was expected to suffer less from the missed opportunity when the chance of missing the more attractive internship was 90% than in the control condition, leading to a higher likelihood to act. The mediation analysis testing these predictions is displayed in Table 5.5. The data show that importance mediates the moderating effect of chance on inaction inertia, because (a) the independent variable, in this case the interaction between chance and difference in attractiveness, predicted the mediating variable, in this case importance (see Table 5.5, column 2); (b) the mediating variable predicted the dependent variable, in this case likelihood to act; and (c) the effect of the independent variable on the dependent variable was reduced when the mediator was entered into the equation

Table 5.5. *Mediation Analysis of Experiment 5.3*

	Likelihood to act	Importance	Likelihood to act (with Importance)
Difference in attractiveness (DA)	-.31**	-.24*	-.13*
90% chance of missing (C)	.02	-.10	.10
DA ×C	.28*	.29*	.07
Importance			.66**

Note: standardized Beta coefficients are reported. * $p \leq .05$, ** $p < .01$

(see Table 5.5, column 1 vs. 3; Baron & Kenny, 1986). A Sobel test (1982) confirmed that the interaction effect of difference in attractiveness and chance on likelihood to act is significantly mediated by importance, $z = 1.92$, $p = .055$.

Discussion

The results of Experiment 5.3 confirm that a manipulation affecting the use of the sour grapes mechanism affects the inaction inertia effect. When the use of sour grapes was less necessary, because people expected to miss the initial opportunity inaction inertia decreased. The results replicate the findings of Experiment 5.2 that importance mediates the relation between the manipulations and likelihood to act and that it is not frustration that is driving the results of Experiment 5.1 and 5.2, but rather the downgrading of the option under consideration. When frustration was low, downgrading was made unnecessary and inaction inertia also decreased. Additionally, they again show a similar pattern of frustration and likelihood to act, but not of regret and likelihood to act. These results strongly support the sour grapes explanation of inaction inertia.

GENERAL DISCUSSION

Can sour grapes explain the inaction inertia effect? That was the central question under investigation in this chapter. The idea was that having missed a deal that was much better than the currently offered deal is frustrating. People downgrade the deal by convincing themselves it is not such a great deal after all, in order to cope with the frustration resulting from the difference in attractiveness with the previous opportunity. As a result, likelihood to act on the current deal increases, revealing inaction inertia. Three experiments found support for this explanation. Experiment 5.1 found that thinking about the positive aspects of the missed opportunity decreases inaction inertia, whereas thinking about the negative aspects did not influence inaction inertia. This finding indicates that downgrading the deal is part of the explanation of inaction inertia. Experiment 5.2 found that emphasis of the sweetness of the deal decreased inaction inertia. Both experiments confirm the prediction that inaction inertia decreases when downgrading the deal is no longer a means to undo the frustration associated with missing the first opportunity. Experiment 5.3 found that inaction inertia decreases when there was a 90% chance of missing the initial opportunity. This experiment shows that it is the downgrading of the deal as a consequence of frustration, not the frustration itself that causes inaction inertia. The results confirmed the prediction that inaction inertia decreases when frustration about missing the first opportunity is low to begin with and there is no need to downgrade the opportunity. Clearly, the results are in favor of inaction inertia as a sour grapes phenomenon.

The results on the frustration measures confirmed the underlying theory even more. When the sour grapes mechanism is discouraged, as in Experiments 5.1 and 5.2, frustration levels stay high. When the positive aspects of the deal are made salient, frustration cannot be reduced by downgrading the deal and therefore stays high. When the expectation of missing the deal is high, as in Exp. 3, frustration is low. More support for the underlying theory was provided by the mediations of importance on likelihood to act. When the use of the sour grapes mechanism is hindered, there are no more effects of the difference in attractiveness between the missed and the current opportunity on the rated importance

of the deal. The effects on importance in turn explained the effects on likelihood to act on the current opportunity. Thus, by interfering with the use of the sour grapes mechanism, the rated importance of the deal was interfered and that influenced the strength of the inaction inertia effect. Not only did the manipulations of the use of the sour grapes mechanism support the sour grapes explanation of inaction inertia, the data also confirm the underlying process put forward by the theory.

The data show strong evidence that indeed sour grapes can explain the inaction inertia effect. This provides important answers to earlier questions about what causes inaction inertia, and why the results on the devaluation and regret explanations were not completely satisfactory in this respect. Devaluation apparently occurs for a reason, and it might be insufficient to see devaluation as an explanation by itself. The comfort it provides for the frustration that the offer at hand has been much more attractive is crucial for understanding inaction inertia. The present research thus provides important insights into why and how devaluation plays a role in the inaction inertia effect. It would be interesting to further investigate the role of the sour grapes mechanism on devaluation in price.

In sum, the data reported here investigated the sour grapes explanation of inaction inertia. The experiments provide support that inaction inertia is the result of the downgrading of the opportunity to reduce frustration associated with it because of the difference in attractiveness with the missed opportunity. Therefore it provides important insights into why devaluation, as found in earlier studies occurs. Moreover, it provides the new and interesting way to understand inaction inertia as a sour grapes phenomenon, and that people stay inactive on sweet deals because they sour them.

Chapter 6

CONCLUSIONS AND DISCUSSION

The aim of this dissertation was to gain knowledge and insight into the inaction inertia effect. Although the inaction inertia effect was well-established and seemed to be a robust finding, many questions concerning its robustness, boundary conditions, causes and consequences remained. For one, it was unclear when precisely inaction inertia would occur. Yes, it is a robust phenomenon, but does this mean that every time we miss an attractive opportunity we are forced to inaction? Aren't characteristics of the opportunity itself, or the situation in which the opportunity manifests itself important determinants for inaction inertia to occur? Also, will missing an opportunity cause inaction to everyone to the same degree? Or are some people more susceptible to the inaction inertia effect than others? And if we know all these preconditions, what does it say about the causes of the inaction inertia effect? Is inaction inertia a purely reason based, calculative process? Or do feelings have an important role in this effect, and if so, which feelings come into play? All these question formed the basis of this project, and this dissertation contains the research designed to answer these questions.

I started with studying the boundary conditions of inaction inertia. In the typical inaction inertia study there is one single opportunity that is missed and one single opportunity that is subsequently offered. Chapter 2 investigated what the effect of the presence of multiple options during the decision process on inaction inertia was. The results showed that inaction inertia decreases when there are more options available to choose from. Thus, inaction inertia typically occurs when there is one missed and one current opportunity. The results of Chapter 2 show that when other options are available, there is less focus on the missed opportunity and the likelihood to act on a current option is higher than when only one

option is available. This decrease of focus on the missed opportunity when multiple options are available is illustrated by the finding that multiple missed options (and thus a decrease in the focus on the missed opportunity) enhance the inaction inertia effect. In this case of multiple missed options, people will be relatively inactive even when the missed and the current opportunity are not that different in attractiveness. Thus, multiple options change the focus of decision makers. This finding illustrates that multiple available options decrease inaction inertia, because they decrease the strong focus on the missed opportunity.

The second investigation of the boundary conditions of inaction inertia looked at the association between the missed and the current opportunity. In typical previous inaction inertia studies, the missed and the current opportunity are very similar, the one is quickly followed by the other, and it is always clear that the current opportunity compares badly to the missed opportunity. Because of these characteristics the two opportunities might have been highly associated and therefore very easy to compare. In fact, when two opportunities are as strongly associated as that, it is almost impossible not to compare them! Chapter 3 showed that when this association between the missed and the current opportunity is weak, inaction inertia is less likely to occur. Thus, not all missed opportunities influence our current decisions. Specifically, the findings show that inaction inertia decreases when, (a) the information about the attractiveness of the missed opportunity is unclear, or ambiguous, and therefore less easy to compare with the attractiveness of the current opportunity; (b) the missed opportunity was not just one step away, but an extra decision was necessary to obtain it; and (c) the missed opportunity is less comparable to the current opportunity. These three features all decoupled the missed from the current opportunity. As a result, the decision to act on the current opportunity it is not strongly associated with the missed opportunity anymore. Because the focus is more on the current opportunity as such, and not so much on the difference in attractiveness with the missed opportunity, the inaction inertia effect decreased.

Some people are better at decoupling past events and present events. One person might worry about the missed more attractive opportunity and keep thinking about it for a long time, while another person might

step over it more quickly and focus on the present opportunity instead. This individual difference in coping with missed opportunities is well captured by the distinction between action and state-oriented people (Kuhl & Beckmann, 1994). Chapter 4 showed that action-oriented people, who get over negative events relatively quickly, show less inaction inertia effects than state-oriented people, who keep thinking about negative events. Moreover, the findings show that action-oriented people are less influenced by the missed opportunity in their valuation of the current opportunity than state-oriented people. As a result, action-oriented people value the current opportunity more than state-oriented people, and thus are more likely to act on it.

These three chapters clearly show that there are important boundary conditions, depending on the situation, the characteristics of the opportunities and the person in the situation to elicit the inaction inertia effect. These chapters indicate implicitly and explicitly that valuation of the current opportunity plays an important causal role in the inaction inertia effect. Implicitly, because the missed opportunity will only influence the perceived attractiveness of the missed opportunity when there is a clear focus on the missed opportunity (Chapter 2) and a clear association between the missed and the current opportunity (Chapter 3). One might conclude that only then the current opportunity will be compared to the missed opportunity and only then people will be able to use the missed opportunity to calculate the value of the current opportunity. Explicitly, Chapter 4 indeed shows that action orientation attenuates inaction inertia through valuation. Based on these findings one might be tempted to conclude that inaction inertia is nothing more than a reason based, calculative process, that occurs because the missed opportunity signals that the current opportunity is too expensive.

It is highly unlikely, however, that inaction inertia is a purely reason based, calculative process. The literature provides data to support this claim. For example, inaction inertia decreases when people are encouraged to think deeply before they decide to act on the current opportunity (Zeelenberg et al., 2006, Exp. 4). Thus, reasoning *decreases* the effect. Also, when the missed opportunity is unavoidable inaction inertia decreases (Tykocinski & Pittman, 1998). Thus, inaction inertia seems to be motivated by the wish to avoid the negative feelings

associated with the missed opportunity. Hence, there is clear evidence that feelings play an important role in the inaction inertia effect. The literature has mainly focused on the negative emotion regret. The explanation is, that people stay inactive on the current opportunity to avoid further confrontation with the regret over the missed opportunity. However, recent findings show evidence against an explanation in terms of regret (Zeelenberg et al., 2006). But, if negative feelings play an important role in the inaction inertia, why do we find evidence against a regret explanation?

Chapter 5 provides another perspective on the inaction inertia effect that sheds light on these problems. In this Chapter, the idea is tested that missing a more attractive opportunity leads to the experience of negative feelings, specifically that missing an attractive opportunity is frustrating. A way to cope with this type of frustration is to make the object of frustration less important or less valuable. Thus, devaluation of the missed opportunity might not merely be a rational part of inaction inertia, but actually a tool to deal with the emotions that arise in inaction inertia. The findings of Chapter 5 support this line of reasoning. The results show that thinking about the positive aspects of the opportunity increases frustration and decreases inaction inertia. Likewise, confirming the attractiveness of the missed opportunity increases frustration and decreases inaction inertia. When frustration is low, because people expect to miss the initial opportunity, there is no devaluation and inaction inertia decreases as well. These findings show a new and interesting explanation of inaction inertia, and together with previous findings on regret and valuation, a better and more complete view on the processes that come into play in the inaction inertia effect.

After having summarized the research presented in this dissertation and the results that were obtained, let me now return to the what, when, who and why questions of inaction inertia, that were addressed in the introduction. The aim of this dissertation was to answer these questions. I will address the questions again and relate them to the new insights. I will start with when who and why and conclude the discussion by readdressing the fundamental question: What is inaction inertia?

When?

A clear boundary condition for inaction inertia to occur is that the comparison of the current with the missed opportunity should be very easy. Put differently, when the link between the missed and the current opportunity is not evident, or the comparison itself is hindered, inaction inertia will probably not occur. We saw this in Chapter 2, where inaction inertia decreases when multiple available options divert the focus away from the missed opportunity and more onto the current opportunities. Also in Chapter 3, where inaction inertia decreases, when the link, or the clear association between the current and the missed opportunity is weakened. And finally in Chapter 4, where inaction inertia decreases when people have a natural tendency to to get over missed opportunities relatively quickly, and focus on the present options instead. The findings of Chapters 2-4 thus show that for inaction inertia to occur there should be a clear and unmistakable link between the missed and the current opportunity to ensure that the current opportunity is viewed in the light of the missed opportunity. Only then will the likelihood to act on the current opportunity be influenced by the attractiveness of the missed opportunity.

If the link between the missed and the current opportunity should be that clear for inaction inertia to occur, one might wonder how often inaction inertia comes about in everyday life? In regular shops there are usually multiple options to choose from, and especially large discounts are made special and are thus separated from regular discounts. For example, especially very attractive opportunities provide a customer card or coupons to obtain, or they are part of a special theme to celebrate a store's anniversary or Christmas, typically factors that might blur the clear link with subsequent options.

Nevertheless, I do think inaction inertia occurs regularly in everyday life. It will mainly occur in those situations in which opportunities are offered one at a time, such as in telemarketing, door-to-door sales, or other, non commercial opportunities, such as in dating, or undertaking social activities. For example, in my gym I can take aerobics classes at a very convenient time, but I do not because the previous instructor was much better than the current one. So I end up not taking aerobics lessons at all. I am convinced that in all these various situations where people

decide to take an opportunity or not, previous more attractive opportunities can influence the decision.

Who?

This dissertation thus shows that inaction inertia occurs when the focus is on the missed opportunity and when the missed and the current opportunity are clearly linked to each other. When the focus is less on the missed opportunity, and more on the current opportunity instead inaction inertia decreases. As Chapter 4 showed, action-oriented people are better at this unlinking or decoupling of past events from present events than state-oriented people, but with the right mindset everybody will be able to this. Maybe there are other personal differences with the same tendencies to link or segregate events. For example, people with a high need for cognition usually like to think problems through and take every piece of information into account, while people low in need for cognition take little pleasure in thinking things through and rely more on heuristics, or other people to make sense of a situation (Cacioppo, Petty, Feinstein, Blair, & Jarvis, 1996). It is plausible, that, compared to people with a low need for cognition, people with a higher need for cognition take other available current opportunities more into account, because they analyze the decision at hand more thoroughly. Inaction inertia effects should then be weaker the higher the need for cognition, because by taking more options into account the relative focus is less on the missed opportunity and more on the present options instead. The fact that thinking before deciding to act on the current opportunity decreases inaction inertia (Zeelenberg et al., 2006; Exp 4) lends some support for this idea. Whether need for cognition moderates inaction inertia, of course, remains to be tested.

Why?

Chapter 4 shows that this linking of the current to the missed opportunity causes people to use the missed opportunity to estimate the value of the current opportunity. Because the current opportunity decreases in value due to the missed opportunity, likelihood to act on the current

opportunity is low. This provides first insight into the cause of the inaction inertia phenomenon, which seems to depend on the estimated value of the opportunity due to the attractiveness of the missed opportunity. But what can we now conclude about the cause of the inaction inertia phenomenon?

The main questions in the introduction were whether inaction inertia is a regret effect, or an anchoring effect, or both, or something else. Throughout this dissertation it became clear that inaction inertia is not a regret effect, but also not a simple anchoring effect. There is too much emotion involved for inaction inertia to be a simple anchoring effect, but given the data from Zeelenberg et al. (2006) and the findings in Chapter 5, regret does not seem to be the emotion people react to. The things we can conclude are that (a) people do not act on the current opportunity as a reaction to negative feelings; and (b) people do not act on the current opportunity because it is devaluated in comparison to the missed opportunity.

The evidence that inaction inertia stems from a reaction to a negative feeling comes from the earlier findings by Zeelenberg et al. (2006), that thinking reduces the inaction inertia effect, and the findings by Tykocinski and Pittman (1998), that inaction inertia decreases when confrontation with the missed opportunity is unavoidable. The findings are supported by the findings of Chapter 5 that frustration ratings follow the pattern of difference in attractiveness and that an increased expectation that the opportunity will be missed decreases inaction inertia. All these findings show that an important determinant for the effect is the gut feeling that arises when people find out about the missed opportunity and thus that inaction inertia cannot be a simple anchoring effect. Still, there is ample evidence that devaluation is an important determinant for inaction inertia to occur as well (Arkes et al., 2002; Sevdalis et al., 2006; Zeelenberg et al., 2006, Chapters 4 & 5). How can these two results be compatible?

The answer suggested by this dissertation to the question why inaction inertia happens is that inaction inertia is an effect that is caused by the downgrading of the current opportunity as a way to cope with the negative affect caused by comparing it to the missed opportunity. Therefore, when the comparison with the missed opportunity is hindered,

there is no need to downgrade the opportunity to cope with any negative affect. Or, when people get over the missed opportunity quickly, they do not need to downgrade the opportunity to reduce the experienced negative affect. That is why devaluation and affect are both necessary. At the moment, it seems to be the most inclusive and parsimonious explanation of inaction inertia.

What?

After all these new insights into the inaction inertia effect, now is the right time to readdress the question that started the introduction: What is inaction inertia? The initial definition of inaction inertia was: "Inaction inertia occurs when bypassing an initial action opportunity has the effect of decreasing the likelihood that subsequent similar action opportunities will be taken" (Tykocinski et al., 1995, p. 794). With all the knowledge on inaction inertia that has accumulated over the last years, this definition may need to be refined. First, as already explained in the introduction, inaction inertia only occurs when the initial opportunity is much more attractive than the subsequent similar action opportunity. When there is only a small difference in attractiveness, inaction inertia does not occur. Second, as became clear throughout this dissertation, the subsequent action opportunity should not just be similar, but strongly associated to the missed opportunity. When people focus on the current opportunity and the link with the missed opportunity is weakened because of the situation or their personal inclination to do so, the comparison of the current opportunity with the missed opportunity is less obvious and inaction inertia does not occur. This strong association is not just caused by similarity of the two opportunities, but also by other coupling factors and a one-to-one association. Therefore, the definition of inaction inertia might also include that difference in attractiveness between the missed and the current opportunity and the association between the initial and the current opportunity are crucial elements for inaction inertia to occur.

The most important contribution of this dissertation is the idea that inaction inertia is an effect of downgrading the opportunity as a reaction to the negative affect evoked by the comparison with the initial opportunity. Up till now explanations of inaction inertia in terms of

downgrading the current opportunity and the avoidance of negative affect were mainly discussed as two separate processes, that might co-occur (e.g., Arkes et al., 2002; Sevdalis et al., 2006). Chapter 5 in this dissertation is the first research to demonstrate that these processes are linked, by showing that factors that increase frustration reduce the downgrading of the current opportunity.

Based on the knowledge we gained over the years, including in this dissertation, I conclude that inaction inertia occurs when people stay inactive with respect to an attractive opportunity because it is strongly associated with a much more attractive opportunity. As long as the association with the initial opportunity elicits bitter feelings that lead to the downgrading of the current opportunity, inaction inertia will occur. This implies that for inaction inertia to occur the initial opportunity does not necessarily need to be missed. Expecting a much more attractive opportunity, because of a typing error in the ad for example might (and can, see Tykocinski & Pittman, 2001, Exp. 2) also induce inaction inertia. Because the current opportunity is associated with a more attractive expected opportunity, the comparison (and hence the following bitterness and downgrading) will probably still take place. Note, that this goes against an explanation in terms of regret, which would predict the opposite, namely that missing an opportunity is crucial for inaction inertia to occur. Instead, I believe if there is a strong link with a more attractive opportunity and that link elicits the same downgrading of the current opportunity as the missed opportunities have in previous studies, inaction inertia will occur. These are untested hypotheses. Therefore, future research should investigate whether inaction inertia also occurs in these situations.

REGULATING INERTIA

Having a clear perception of what inaction inertia is, enables us to think about how to prevent inertia from setting in. You might be in a situation in which you want to avoid falling prey to the inaction inertia effect. For instance, I am inert when it comes to taking aerobics classes, because the classes used to be better before. If I do want to get into shape by taking

aerobics lessons, now I know how to avoid making the comparison with that other teacher and keep my focus on the present teacher instead. For example, I can compare the course to the spinning class around the same time, where the teacher always yells that you are not good enough. Now all of a sudden the aerobics lessons look much better!

Besides preventing inaction inertia in situations where the decision maker wants to avoid doing nothing, for marketers it is of course important to prevent inaction inertia in their customers. Introducing big promotions might increase sales and attract new customers, but in the long run it might decrease sales, because people do not want to act on an opportunity when it was more attractive before. One obvious solution to prevent inaction inertia in customers is for marketers to keep the differences in attractiveness between promotions and regular prices small. If they do want to attract more customers and increase their promotions, it is good to segregate the regular price from the previous promotion and keep the focus away from the previous large promotion.

This dissertation outlines a few ways to do this. For example, make sure the product is on display next to other similar products and that the regular price still looks attractive next to the other products on the shelf. Or offer the big promotion with coupons or customer cards, such that the current price is segregated from the previous one, because it took more steps to get it. Highlighting the incomparability of the previous opportunity to the regular price might also help. A way to do this is by putting the big promotion in another less comparable product category than it is regularly in (e.g., in supermarkets special sales are often placed on separate shelves, or separate baskets). This way the product changes from the category "cookies" to the category "products on sale", and the next week it is compared less to the previous promotion when it is back in the "cookies" category. Another way to make the big promotion less comparable to the regular sales is by making the promotion unique (cf., Zeelenberg et al., 2006), for example because it is part of a special theme. Because of its uniqueness it is different from other sales and thus less comparable to other sales.

FUTURE RESEARCH

Inaction inertia and regret

Based on this dissertation, one might conclude that regret plays no role whatsoever in the inaction inertia effect. In both Chapter 4 and 5 regret did not cause inaction inertia. Undoubtedly, regret is present when inaction inertia occurs. It signals that indeed a more attractive opportunity was missed and that people feel stupid for letting that happen (Zeelenberg & Pieters, 2007). However, the data from Chapter 5 and the data from Zeelenberg et al. (2006) showed that the fact that it is present does not automatically mean that it has a causal effect. Thus, the regret of missing the more attractive opportunity, or the memory of it when deciding about the subsequent opportunity is not causal for inaction inertia. People will probably anticipate regret when they imagine themselves acting on the current opportunity. But the question remains to what extent this is causal to the inaction inertia effect. Zeelenberg et al. (2006) proposed that anticipated regret is a consequence of the downgrading of the opportunity. People will probably expect to regret acting on the opportunity when they just downgraded it for the sake of comfort. Although Zeelenberg et al. (2006) report correlations that support this claim, this question still needs to be investigated empirically.

Inertia or switching?

The inaction inertia research discussed so far might give the impression that inaction inertia is just a matter of acting on the opportunity or staying passive. However, when there are multiple options to choose from, people might also switch to another option in the choice set (Zeelenberg & Van Putten, 2005). Based on the findings concerning the when question, this dissertation can provide two motivations for switching. One comes from Chapter 2, that people focus less on the missed opportunity and more on the current options instead. An obvious motivation to switch is that people choose the most attractive option from the current choice set, which happens to be another option than the previously more attractive option. Another motivation might be, that

switching is a way of actively decoupling the current from the missed opportunity. Because Chapter 3 showed that inaction inertia decreases when the missed opportunity is less comparable to the current opportunity, it might be that people switch to another option in the choice set to actively decrease the comparability of the current opportunity. People might be motivated to break the link between the current and the missed opportunity because they will anticipate more pleasure with their action than when the same opportunity is chosen. It remains speculation if this second motivation for switching is valid. Research should give more insight into this question.

Inertia and the sunk cost effect

In the introduction, inaction inertia was linked to the effects of prior *actions* that stimulate people to take action are well known. For example the sunk cost effect, that people are more likely to invest in a failing course of action, when they invested in that action earlier (e.g., the costly Dutch railway known as the Betuwelijn; Arkes & Blumer, 1985). Inaction inertia is similar to the sunk cost effect, because it also describes that past decisions influence current decisions. The findings of this dissertation could be therefore insightful to the sunk cost effect as well.

The Betuwelijn is a great example of the sunk cost effect. The budget for the railway was estimated on approximately €2.5 billions, now the costs have accumulated to €4.7 billions. Only a couple of trains have actually used the railway. Traffic has been put to a halt due to several malfunctions. Still the Dutch government insisted on finishing the project. The following (taken from a webpage on the Betuwelijn and translated from Dutch; Wikipedia, October 3, 2007 http://nl.wikipedia.org/wiki/Betuweroute) illustrates this irrational decision:

> The Betuwelijn has been under pressure since the beginning of the studies. Many people, including renowned and independent experts, seriously doubt whether the railway will be profitable. Inland shipping would be cheaper and the capacity of

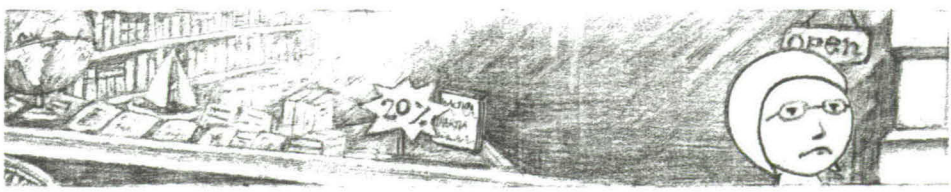
> inland shipping would be easy to expand. Still, the government has agreed upon continuing the project, despite consistent criticism from science as well as society.

Why would a government decide to keep investing in a project that is clearly not profitable? The answer to this question based on sunk cost research is simple, namely because the government already invested so much in it earlier and they do not want to waste these earlier investments (Arkes & Ayton, 1999; Arkes & Blumer, 1985). How could such a losing course of action, which clearly had and still has great consequences for Dutch society (financially, and environmentally) been prevented?

This dissertation might give a couple of suggestions on how to prevent the sunk cost effect. First, because like the inaction inertia effect, it describes that past decisions influence current decisions, the sunk cost effect might be prevented by focusing on multiple current available investments. The Dutch government might have stopped and put this project next to other projects, such as education, inland shipping, or the health care system. Then they might have stopped investing money in the railway and invest in one of these other projects.

Second, the sunk cost effect could be prevented by decoupling the sunk cost from the current decision to invest in the project. When the costs already made in the project are ambiguous, and thus less likely to be coupled to the current decision to invest or not, the sunk cost effect disappears (Van Dijk & Zeelenberg, 2003). Thus, when the government was not given a strict amount of expenditures already made, but more an estimate between €2.5 and €3.5 billion , their tendency to further invest in the railway could have been prevented. Other ways to decouple the sunk costs from the current investment decision might have been to make the investments less comparable. By framing both the costs as general investments in the Betuwelijn they are much easier to compare than when they are framed in more detail (Johnson, 1984), for example if the earlier investment was seen as costs for preparing the site for building, and the other investment in costs for material.

Third, the sunk cost effect might be prevented by activating an action-oriented mindset. Remember that action-oriented people show



weaker inaction inertia effects than state-oriented people, because action-oriented people use the missed opportunity less to value the current opportunity than state-oriented people (Chapter 4). One might get the impression that action-oriented people are more active in general, because they get over past events more quickly and focus on how to improve the present. However, if action-oriented people also get over sunk costs more quickly than state-oriented people, they should be less likely to invest in more in the project. Probably, if the Dutch government focused less on already incurred costs and was more focused on the current situation and what is the best strategy to optimize the present instead, the investments in the Betuwelijn would not have been nearly twice as much as estimated. Thus, by studying inaction inertia new ideas for research in other fields emerged as well. Maybe if these ideas can be generalized to the sunk cost effect, they might also be to other sequential decision phenomena, such as the door-in-the-face technique (Cialdini et al., 1975), or the foot-in-the-door technique (Freedman & Fraser, 1966).

At the end...

At the end of this dissertation I look back at it with great satisfaction. The research conducted over the last couple of years brought about important insights into when, to whom, and why inaction inertia occurs. These insights contribute to our understanding of the causes and boundary conditions of the inaction inertia effect, and thereby of our understanding what inaction inertia is. Moreover, these insights led to new ideas and new insights that can inspire others (and myself) to take new research venues. Not just in the field of inaction inertia, but also more generally in the field of sequential decision making. Of course, there are other paths I could have chosen, that might have led to an even better understanding of inaction inertia. As frustrating as this thought might sound, let us not trivialize the content of this book. After all, if I had chosen to pursue a career in customer care service (my job-on-the-side during college), this book would have never even existed! I am happy I chose the scientific road and studied inaction inertia, because now I have more insight in how we humans are typically dealing with missed opportunities.


20%
open

SAMENVATTING
(Summary in Dutch)

Het doel van dit proefschrift was het krijgen van kennis over en inzicht in het inactie inertie effect. Het inactie inertie effect houdt in dat mensen minder geneigd zijn in te gaan op een aantrekkelijke aanbieding als ze eerder een veel aantrekkelijkere aanbieding hebben gemist (Tykocinski, Pittman, & Tuttle, 1995). Wanneer mensen bijvoorbeeld een aanbieding op een vakantie zien van €1000 voor €900, zijn ze over het algemeen minder geneigd de reis te boeken wanneer de vakantie een week eerder €400 kostte dan wanneer er geen eerdere aanbieding was. Hoe aantrekkelijker de gemiste aanbieding, hoe minder geneigd men is op de huidige aanbieding in te gaan. Het inactie inertie effect is inmiddels goed gefundeerd en het lijkt een robuuste bevinding te zijn. Toch bleven er vragen bestaan over de robuustheid, de grensvoorwaarden, oorzaak en gevolgen. Het was bijvoorbeeld onduidelijk wanneer het effect precies zou optreden. Omdat het een robuuste bevinding is, betekent dit dat telkens wanneer we een mooie kans mislopen we gedwongen worden tot een staat van inactie? Zijn er geen kenmerken van de aanbieding, of de situatie waarin deze zich voordoet die bepalen of inactie inertie optreedt of niet? En zal het missen van een mooie aanbieding het gedrag van iedereen hetzelfde beïnvloeden? Of zijn sommige mensen vatbaarder voor het inactie inertie effect dan anderen? En als we al deze voorwaarden voor het inactie inertie effect weten, wat vertelt ons dat over de oorzaak van het effect? Is inactie inertie een effect dat gebaseerd is op puur beredeneerde en calculerende processen, of spelen gevoelens een belangrijke rol bij het veroorzaken van inactie inertie? Al deze vragen vormden de basis van mijn onderzoeksproject en dit proefschrift is geschreven om deze vragen zo goed mogelijk te beantwoorden.

Ik ben begonnen met het bestuderen van de grensvoorwaarden van inactie inertie. In de typische inactie inertie studie is er één gemiste aanbieding en wordt er vervolgens één andere aanbieding aangeboden. In Hoofdstuk 2 werd onderzocht wat het effect is van het aanbieden van meerdere opties tijdens de besluitvorming op het inactie inertie effect. De resultaten lieten zien, dat inactie inertie afneemt wanneer er meerdere huidige opties zijn waaruit men kan kiezen. Inactie inertie komt dus typisch voor wanneer er één gemiste en één huidige aanbieding zijn aangeboden. Hoofdstuk 2 laat zien dat wanneer er meerdere opties beschikbaar zijn de aandacht van de gemiste aanbieding afgaat en het

vervolgens waarschijnlijker wordt dat een optie wordt gekozen dan wanneer één optie aangeboden wordt. Dat meerdere huidige opties de aandacht afleiden van de gemiste aanbieding wordt geïllustreerd met de bevinding dat meerdere gemiste opties (en dus een grotere aandacht voor het gemiste) het inactie inertie effect versterken. In het geval van meerdere gemiste opties zijn mensen namelijk inactiever dan wanneer er één gemiste aanbieding was, zelfs wanneer er een klein verschil in aantrekkelijkheid is tussen de gemiste en de huidige aanbiedingen. Meerdere opties richten dus de aandacht van de besluitnemers juist op de gemiste aanbieding of juist ervan af.

Het tweede onderzoek naar de grensvoorwaarden van inactie inertie keek naar de associatie tussen de gemiste en de huidige aanbieding. In typische inactie inertie studies tot nu toe leken de gemiste en de huidige aanbieding erg op elkaar, de huidige volgde altijd snel op de gemiste aanbieding en het was altijd heel erg duidelijk dat de huidige aanbieding slecht was vergeleken met de gemiste aanbieding. Vanwege deze eigenschappen van de twee aanbiedingen zou het kunnen zijn dat ze sterk geassocieerd zijn met elkaar en daarom erg makkelijk te vergelijken. Sterker nog, als twee aanbiedingen zo sterk geassocieerd zijn met elkaar is het bijna onmogelijk om ze niet met elkaar te vergelijken! Hoofdstuk 3 liet zien dat wanneer de associatie tussen de twee aanbiedingen minder sterk is, inactie inertie ook afneemt. Niet alle gemiste aanbiedingen beïnvloeden dus onze beslissingen. De resultaten laten specifiek zien, dat inactie inertie afneemt wanneer (a) de informatie over de aantrekkelijkheid van de gemiste aanbieding onzeker, of ambigu is, en daarom moeilijker te vergelijken met de aantrekkelijkheid van de huidige aanbieding; (b) de gemiste aanbieding niet één stap verwijderd is van de huidige aanbieding, maar dat er meerdere besluiten nodig waren om de gemiste aanbieding te krijgen; en (c) de gemiste aanbieding minder vergelijkbaar is met de huidige aanbieding. Deze drie kenmerken ontkoppelden de gemiste van de huidige aanbieding, waardoor het besluit de huidige aanbieding wel of niet te nemen minder geassocieerd werd met de gemiste aanbieding. Inactie inertie nam af, omdat de aandacht meer bij de huidige aanbieding lag en niet meer zozeer op het verschil in aantrekkelijkheid met de gemiste aanbieding.

Sommige mensen zijn beter in het ontkoppelen van eerdere gebeurtenissen van huidige gebeurtenissen. De ene persoon kan zich heel erg druk maken om gemiste aanbiedingen en blijft hierover piekeren, terwijl de andere persoon er makkelijker overheen stapt en zich meer richt op het hier en nu. Dit individuele verschil in het omgaan met gemiste aanbiedingen wordt goed vastgelegd met het onderscheid van

mensen met een actie of een toestand oriëntatie (Kuhl & Beckmann, 1994). Hoofdstuk 4 liet zien dat actie georiënteerde mensen, die relatief snel over gemiste aanbiedingen heen stappen, minder het inactie inertie effect vertonen dan mensen met een toestand oriëntatie, die blijven piekeren over gemiste aanbiedingen. Bovendien lieten de resultaten zien dat actie georiënteerde mensen minder worden beïnvloed door de gemiste aanbieding bij het op waarde schatten van de huidige aanbieding dan toestand georiënteerde mensen. Hierdoor schatten de actie georiënteerde mensen de huidige aanbieding op hogere waarde dan toestand georiënteerde mensen en zijn daarom eerder geneigd op de aanbieding in te gaan.

Deze 3 hoofdstukken laten dus duidelijke grensvoorwaarden zien voor het inactie inertie effect, afhankelijk van de situatie, de kenmerken van de aanbiedingen en persoonlijkheid. Zowel impliciet als expliciet tonen deze hoofdstukken aan dat de waardeschatting van de huidige aanbieding een belangrijke rol speelt in het veroorzaken van het inactie inertie effect. Impliciet, omdat de gemiste aanbieding de vermeende aantrekkelijkheid van de huidige aanbieding alleen beïnvloedt wanneer de aandacht sterk op de gemiste aanbieding ligt (Hoofdstuk 2) en er een sterke associatie is tussen de gemiste en de huidige aanbieding (Hoofdstuk 3). Je zou hieruit kunnen concluderen dat alleen in die omstandigheden de huidige aanbieding met de gemiste aanbieding wordt vergeleken en dat dus daarom mensen in staat zijn om de gemiste aanbieding te gebruiken om de waarde van de huidige aanbieding te berekenen. Expliciet, omdat Hoofdstuk 4 daadwerkelijk laat zien dat de waardeschatting leidt tot inactie inertie voor toestand, maar niet voor actie georiënteerde mensen. Gebaseerd op deze resultaten kunnen we tot de verleiding komen om te concluderen dat inactie inertie een puur berekend en beredeneerd proces is, waarbij de gemiste aanbieding signaleert dat de huidige aanbieding simpelweg te duur is.

Toch is het hoogst onwaarschijnlijk dat inactie inertie een puur beredeneerd rekeneffect is. De literatuur ondersteunt deze gedachte. Zo vermindert inactie inertie wanneer mensen worden aangespoord goed na te denken over hun beslissing de huidige aanbieding te pakken of niet (Zeelenberg et al., 2006, Exp. 4). Nadenken *vermindert* dus juist het inactie inertie effect. Een ander punt is dat inactie inertie verdwijnt wanneer de gemiste aanbieding onvermijdbaar is (Tykocinski & Pittman, 1998). Kennelijk wordt inactie inertie gemotiveerd door de wens de negatieve gevoelens die gepaard gaan met de gemiste aanbieding te vermijden. Gevoelens spelen dus duidelijk een belangrijke rol in het veroorzaken van inactie inertie. De literatuur concentreert zich tot nu toe

voornamelijk op de emotie spijt. De verklaring is dat mensen niet op de huidige aanbieding ingaan, om niet verder geconfronteerd te hoeven worden met hun spijt over de gemiste aanbieding. Recentelijk onderzoek laat echter sterk bewijs zien tegen een verklaring in termen van spijt (Zeelenberg et al., 2006). De vraag blijft nu, als negatieve gevoelens zo'n belangrijke rol in het inactie inertie effect spelen, waarom vinden we dan bewijs tegen een verklaring in termen van spijt?

Hoofdstuk 5 biedt een ander perspectief op het inactie inertie effect dat haar licht laat schijnen over deze problemen. In dit hoofdstuk wordt het idee getest dat het missen van een eerdere aanbieding leidt tot negatieve gevoelens, meer specifiek dat het frustrerend is. Een manier om met deze frustratie om te gaan is door het frustrerende object (in dit geval de gemiste aanbieding) minder belangrijk of minder waardevol te maken. De lagere waardeschatting in het inactie inertie effect zou dus niet een rekenproces kunnen zijn, maar een manier om met de emoties die opspelen bij inactie inertie om te gaan. De resultaten van Hoofdstuk 5 steunen deze redenering. De resultaten laten zien dat het nadenken over de positieve aspecten van de gemiste aanbieding frustratie verhogen en inactie inertie verminderen. Ook het benadrukken van de aantrekkelijkheid van de aanbieding verhoogt frustratie en vermindert inactie inertie. Tot slot is de frustratie laag wanneer men verwacht de aanbieding te zullen missen en er geen verlaagde waardeschatting nodig meer is om met de frustratie om te gaan. Dit onderzoek laat een nieuwe interessante verklaring van inactie inertie zien en samen met de eerdere bevindingen ten aanzien van spijt en waardeschatting geeft dit onderzoek een beter en meer complete kijk op de processen die ten grondslag liggen aan het inactie inertie effect.

REFERENCES

Arkes, H. R., & Ayton, P. (1999). The sunk cost and concorde effects: Are humans less rational than lower animals? *Psychological Bulletin, 125*, 591-600.

Arkes, H. R., & Blumer, C. (1985). The psychology of sunk costs. *Organizational Behavior and Human Decision Processes, 35*, 124-140.

Arkes, H. R., Kung, Y., & Hutzel, L. (2002). Regret, valuation, and inaction inertia. *Organizational Behavior and Human Decision Processes, 87*, 371-385.

Bargh, J. A., & Chartrand, T. L. (2000). The mind in the middle: A practical guide to priming and automaticity research. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 253-285). Cambridge: Cambridge University Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Bazerman, M. H., Moore, D. A., Tenbrunsel, A. E., Wade-Benzoni, K. A., & Blount, S. (1999). Explaining how preferences change across joint versus separate evaluation. *Journal of Economic Behavior and Organization, 39*, 41-58.

Bonini, N., & Rumiati, R. (2002). Acceptance of a price discount: The role of the semantic relatedness between purchases and the

comparative price format. *Journal of Behavioral Decision Making, 15*, 203-220.

Butler, A., & Highhouse, S. (2000). Deciding to sell: The effect of prior inaction and offer source. *Journal of Economic Psychology, 21*, 223-232.

Cacioppo, J. T., Petty, R. E., Feinstein, J. A., Blair, W., & Jarvis, G. (1996). Dispositional differences in cognitive motivation: The life and times of individuals varying in need for cognition. *Psychological Bulletin, 119*, 197-253.

Chartrand, T., Pinckert, S., & Burger, J. M. (1999). When manipulation backfires: The effects of time delay and requester on the foot-in-the-door technique. *Journal of Applied Social Psychology, 29*, 211-221.

Cialdini, R. B., Caccioppo, J. T., Bassett, R., & Miller, J. A. (1978). Low-ball procedure for producing compliance: Commitment then cost. *Journal of Personality and Social Psychology, 36*, 436-476.

Cialdini, R. B., Vincent, J. E., Lewis, S. K., Catalan, J., Wheeler, D., & Darby, B. L. (1975). Reciprocal concessions procedure for inducing compliance: The door-in-the-face technique. *Journal of Personality and Social Psychology, 31*, 206-215.

Dhar, R. (1997). Consumer preference for a no-choice option. *Journal of Consumer Research, 24*, 215-231.

Dieffendorff, J. M., Hall, R. J., Lord, R. G., & Strean, M. L. (2000). Action-state orientation: Construct validity of a revised measure and its relationship to work-related variables. *Journal of Applied Psychology, 85*, 250-263.

Elster, J. (1983). *Sour grapes: Studies in the subversion of rationality.* Cambridge: Cambridge University Press.

Freedman, J. L., & Fraser, S. C. (1966). Compliance without pressure: The foot-in-the-door technique. *Journal of Personality and Social Psychology, 4*, 195-202.

Gourville, J. T., & Soman, D. (1998). Payment depreciation: The behavioral effects of temporally separating payments from consumption. *Journal of Consumer Research, 25*, 160-174.

Harmon-Jones, E., & Harmon-Jones, C. (2002). Testing the action-based model of cognitive dissonance: The effect of action orientation on postdecisional attitudes. *Personality and Social Psychology Bulletin, 28*, 711-723.

Henderson, P. W., & Peterson, R. A. (1992). Mental accounting and categorization. *Organizational Behavior and Human Decision Processes, 51*, 92-111.

Hsee, C. K., & Leclerc, F. (1998). Will products look more attractive when presented separately or together? *Journal of Consumer Research, 25*, 175-186.

Hsee, C. K., Loewenstein, G., Blount, S., & Bazerman, M. H. (1999). Preference reversals between joint and separate evaluations of options: A review and theoretical analysis. *Psychological Bulletin, 125*, 576-590.

Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology, 79*, 995-1006.

Johnson, E. J., & Goldstein, D. (2003). Medicine - do defaults save lives? *Science, 302*, 1338-1339.

Johnson, M. D. (1984). Consumer choice strategies for comparing noncomparable alternatives. *Journal of Consumer Research, 11*, 741-753.

Jones, S. K., Frisch, D., Yurak, T. J., & Kim, E. (1998). Choices and opportunities: Another effect of framing on decisions. *Journal of Behavioral Decision Making, 11*, 211-226.

Kahneman, D., & Tversky, A. (1982). The simulation heuristic. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases.* (pp. 201-208). New-York: Cambridge University Press.

Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist, 39*, 341-350.

Kahneman, D., & Tversky, A. (2000). *Choices, values and frames.* Cambridge: Cambridge University Press.

Kuhl, J. (1981). Motivational and functional helplessnesss: The moderating effect of state versus action orientation. *Journal of Personality and Social Psychology, 40*, 155-170.

Kuhl, J., & Beckmann, J. (1994). *Volition and personality: Action versus state orientation.* Seattle: Hogrefe & Huber.

Kumar, P. (2004). The effects of social comparison on inaction inertia. *Organizational Behavior and Human Decision Processes, 95*, 175-185.

Northcraft, G. B., & Neale, M. A. (1986). Opportunity costs and the framing of resource allocation decisions. *Organizational Behavior and Human Decision Processes, 37*, 348-356.

Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science, 17*, 4-28.

Prelec, D., & Simester, D. (2001). Always leave home without it: A further investigation of the credit-card effect on willingness to pay. *Marketing Letters, 12*, 5-12.

Reyes, R. M., Thompson, W. C., & Bower, G. H. (1980). Judgmental biases resulting from differing availabilities of arguments. *Journal of Personality and Social Psychology, 39*, 2-12.

Ritov, I., & Baron, J. (1992). Status-quo and omission biases. *Journal of Risk and Uncertainty, 5*, 49-61.

Roseman, I. J., Wiest, C., & Swartz, T. S. (1994). Phenomenology, behaviors, and goals differentiate discrete emotions. *Journal of Personality and Social Psychology, 67*, 206-221.

Schwartz, B. (2000). Self-determination - the tyranny of freedom. *American Psychologist, 55*, 79-88.

Sevdalis, N., Harvey, N., & Yip, M. (2006). Regret triggers inaction inertia - but which regret and how? *British Journal of Social Psychology, 45*, 839-853.

Shafir, E., Simonson, I., & Tversky, A. (1993). Reason-based choice. *Cognition, 49*, 11-36.

Shafir, E., & Tversky, A. (1992). Thinking through uncertainty: Nonconsequential reasoning and choice. *Cognitive Psychology, 24*, 449-474.

Sherman, S. J., Cialdini, R. B., Schwartzman, D. F., & Reynolds, K. D. (1985). Imagining can heighten or lower the perceived likelihood of contracting a disease: The mediating effect of ease of imagery. *Personality and Social Psychology Bulletin, 11*, 118-127.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology* (pp. 290-312). San Francisco: Jossey-Bass.

Soman, D., & Gourville, J. T. (2001). Transaction decoupling: How price bundling affects the decision to consume. *Journal of Marketing Research, 38*, 30-44.

Spranca, M., Minsk, E., & Baron, J. (1991). Omission and commission in judgment and choice. *Journal of Experimental Social Psychology, 27*, 76-105.

Teigen, K. H. (1996). Luck: The art of a near miss. *Scandanavian Journal of Psychology, 37*, 156-171.

Thaler, R. H. (1985). Mental accounting and consumer choice. *Marketing Science, 4*, 199-214.

Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making, 12*, 183-206.

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review, 110*, 403-421.

Tversky, A., & Shafir, E. (1992). The disjunction effect in choice under uncertainty. *Psychological Science, 3*, 305-309.

Tykocinski, O. E. (2001). I never had a change: Using hindsight tactics to mitigate disappointments. *Personality and Social Psychology Bulletin, 27*, 376-382.

Tykocinski, O. E., Israel, R., & Pittman, T. S. (2004). Inaction inertia in the stock market. *Journal of Applied Social Psychology, 34*, 1166-1175.

Tykocinski, O. E., Pick, D., & Kedmi, D. (2002). Retroactive pessimism: A different kind of hindsight bias. *European Journal of Social Psychology, 32*, 577-588.

Tykocinski, O. E., & Pittman, T. S. (1998). The consequences of doing nothing: Inaction inertia as avoidance of anticipated counterfactual regret. *Journal of Personality and Social Psychology, 75*, 607-616.

Tykocinski, O. E., & Pittman, T. S. (2001). Product aversion following a missed opportunity: Price contrast or avoidance of anticipated regret. *Basic and Applied Social Psychology, 23*, 149-156.

Tykocinski, O. E., & Pittman, T. S. (2004). The dark side of opportunity: Regret, disappointment, and the cost of prospects. In I. Brocas & J. D. Carillo (Eds.), *The psychology of economic decisions: Reasons and choices* (Vol. 2, pp. 179-196). New York: Oxford university press.

Tykocinski, O. E., Pittman, T. S., & Tuttle, E. E. (1995). Inaction inertia: Foregoing future benefits as a result of an initial failure to act. *Journal of Personality and Social Psychology, 68*, 793-803.

Tykocinski, O. E., & Steinberg, N. (2005). Coping with disappointing outcomes: Retroactive pessimism and motivated inhibition of counterfactuals. *Journal of Experimental Social Psychology, 41*, 551-558.

Van Dijk, E., & Van Knippenberg, D. (1998). Trading wine: On the endowment effect, loss aversion, and the comparability of consumer goods. *Journal of Economic Psychology, 19*, 485-495.

Van Dijk, E., & Zeelenberg, M. (2003). The discounting of ambiguous information in economic decision making. *Journal of Behavioral Decision Making, 16*, 341-352.

Van Dijk, E., & Zeelenberg, M. (2005). On the psychology of 'if only': Regret and the comparison between factual and counterfactual outcomes. *Organizational Behavior and Human Decision Processes, 97*, 152-160.

Van Putten, M., Zeelenberg, M., & Van Dijk, E. (2007). Decoupling the past from the present attenuates inaction inertia. *Journal of Behavioral Decision Making, 20*, 65-79.

Zeelenberg, M., Nijstad, B. A., Van Putten, M., & Van Dijk, E. (2006). Inaction inertia, regret and valuation: A closer look. *Organizational Behavior and Human Decision Processes, 101*, 89-104.

Zeelenberg, M., & Pieters, R. (2007). A theory of regret regulation 1.0. *Journal of Consumer Psychology, 17*, 3-18.

Zeelenberg, M., Van Dijk, W. W., & Manstead, A. S. R. (1998). Reconsidering the relation between regret and responsibility. *Organizational Behavior and Human Decision Processes, 74*, 254-272.

Zeelenberg, M., & Van Putten, M. (2005). The dark side of discounts: An inaction inertia perspective on the post-promotion dip. *Psychology and Marketing, 22*, 611-622.

ACKNOWLEDGEMENTS

I deeply thank my promotores, Marcel and Eric, who taught me a great deal and have been very inspiring and motivating throughout the past years, on a scientific and a personal level. I feel fortunate to be raised as a scientist by you.

I am very lucky to have worked in a department filled with smart, motivated and fun people. I thank my colleagues who work(ed) in Tilburg during my PhD-project for their help and advise, the interesting conversations about our research, science and being a good scientist. But also for the good times we had in the department, at conferences and in Esplanade. Also Ton and the Oldendorff research institute, and the students that helped me. Thank you so much.

Thanks to the EAESP summer school in Groningen and the KLI institute I met exciting people, and followed a lot of valuable courses and saw interesting presentations that stuck with me and contributed to my own research and thinking about pursuing a career in science.

My stay in Philadelphia has been a wonderful experience that I will cherish for the rest of my life. I am extremely happy and grateful that I met Jon Baron and that I got the opportunity to work in his lab. Jon, I am deeply thankful for all the time and effort you invested in me and our research. I learned an awful lot from our meetings together and in the lab meetings. I really felt like one of the group during my stay, thank you so much for that. Barry Schwartz has inspired me and made me feel very welcome in Philadelphia and at his university. Barry, I am also extremely happy I could participate in your course and that we started our research projects together. I hope the collaborations with Jon and Barry will continue and will be as fun and interesting as they were. Special thanks also to Becky, my American mom, for being a wonderful guide to American culture and such a wonderful, valuable friend, and to Marianne for al the help, advise and for being a great friend, and to Milena for being the best housemate I could have wished for!

Aan mijn paranimfen, Eva en Marret, ik ben blij met twee zulke sterke, slimme, lieve, mooie vrouwen naast me! Kizzy, ik wist dat het goed zou komen, maar dat de illustraties zo mooi, leuk en doordacht zou worden had ik niet eens durven hopen. Onwijs bedankt!

Mijn vrienden en familie zijn altijd al heel speciaal en belangrijk voor me geweest en vooral tijdens mijn aio periode. Ik voel altijd dat jullie er voor me zijn, onwijs bedankt daarvoor. Rietje extra bedankt, voor al je steun, liefde en harde werk. Jij staat altijd voor me klaar, dat is een fijn gevoel. En een speciaal bedankje voor mijn twee mannen, Ronald en Ulrich. Jullie zijn er te allen tijden[2] voor me. Ze zeggen dat familie gedwongen vrienden zijn, maar Ronald je bent echt uit vrije wil echt mijn beste vriend, echt, dat meen ik serieus. En Ulrich, jij bent natuurlijk fantastisch. Ik ben supertrots op ons!

[2] Heb ik opgezocht. Bron: www.onzetaal.nl

CURRICULUM VITAE

Marijke van Putten was born on December 27th 1979 in The Hague, The Netherlands. She finished secondary education at the Dalton Scholengemeenschap in The Hague in 1997. In 1998 she started studying psychology at Leiden University, where her interest in human decision making was triggered. Working with Eric van Dijk on her theses motivated and inspired her to become a researcher. In 2003 she therefore started her PhD project at Tilburg University under the supervision of Marcel Zeelenberg and Eric van Dijk. In the fourth year of her PhD project she visited the University of Pennsylvania, Philadelphia, USA, to work with Jonathan Baron on research concerning the consequences of deciding not to act and not deciding, which they will continue after her PhD project. There she also started collaborating with Barry Schwartz on the influence of unique and shared choice features on consumer happiness. After her PhD project at Tilburg University, Marijke will be a postdoctoral researcher at the Marketing Department at the University of Leuven, Belgium, to work with Siegfried Dewitte and Luk Warlop.

The "Kurt Lewin Institute Dissertation Series" started in 1997. Since 2006 the following dissertations have been published:

2006-1: Maria Dijkstra: *Workplace Conflict and Individual Well-Being*
2006-2: Ruud Custers: *On the underlying mechanisms of nonconscious goal pursuit*
2006-3: Ellen Dreezens: *The missing link: the relationship between values and attitudes*
2006-4: Jacquelien van Stekelenburg: *Promoting or preventing social change. Instrumentality, identity, ideology and groupbased anger as motives of protest participation*
2006-5: Huadong Yang: *Siding in a conflict in China and in the Netherlands*
2006-6: Tomas Ståhl: *Determinants of Fairness-based and Favorability-based Reactions to Authorities' Decisions*
2006-7: Astrid Homan: *Harvesting the value in diversity: Examining the effects of diversity beliefs, cross-categorization, and superordinate identities on the functioning of diverse work groups*
2006-8: Saskia Schwinghammer: *The Self in Social Comparison*
2006-9: Carmen Carmona Rodríguez: *Inferior or Superior: Social Comparison in Dutch and Spanish Organizations*
2006-10: Martijn van Zomeren: *Social-psychological paths to protest: An integrative perspective*
2007-1: Nils Jostmann: *When the going gets tough... How action versus state orientation moderates the impact of situational demands on cognition, affect, and behavior*
2007-2: Belle Derks: *Social identity threat and performance motivation: The interplay between ingroup and outgroup domains*
2007-3: Helma van den Berg: *Feeling and Thinking in Attitudes*
2007-4: Karin C.A. Bongers: *You can't always get what you want! Consequences of success and failure to attain unconscious goals*
2007-5: Lotte Scholten: *Motivation matters: Motivated information processing in group and individual decision-making*
2007-6: Debra Trampe: *Social influence: Social comparison, construal, and persuasion processes*
2007-7: Clemens Wenneker: *Processes underlying biased language use*
2007-8: Yaël de Liver: *Ambivalence: on the how and when of attitudinal conflict*

2007-9: Erik de Kwaadsteniet: *Uncertainty in social dilemmas*
2007-10: Hugo Alberts: *Processes of self-control and ego depletion*
2007-11: Loran Nordgren: *Thinking about Feeling: The Nature and Significance of the Hot/Cold Empathy Gap*
2007-12: Stefan Thomas Mol: *Crossing Borders with Personnel Selection from expatriates to multicultural teams*
2007-13: Hilbrand Oldenhuis: *I know what they think about us: Metaperceptions and intergroup relations*
2007-14: Arnaud Wisman: *New Directions in Terror Management Theory*
2007-15: Gert Homsma: *Making Errors Worthwhile: Determinants of Constructive Error Handling*
2007-16: Elianne van Steenbergen: *Work-Family Facilitation: A Positive Psychological Perspective on Role Combination*
2007-17: Unna Danner: *By Force of Habit: On the Formation and Maintenance of Goal-Directed Habits*
2007-18: Maureen Tumewu: *The Social Psychology of Gender Differences and Procedural Justice in Close Relationships*
2008-1: Marijke van Putten: *Dealing with missed opportunities. The causes and boundary conditions of inaction inertia*

KURT LEWIN INSTITUUT

Dissertatiereeks
Kurt Lewin Instituut
2008-1